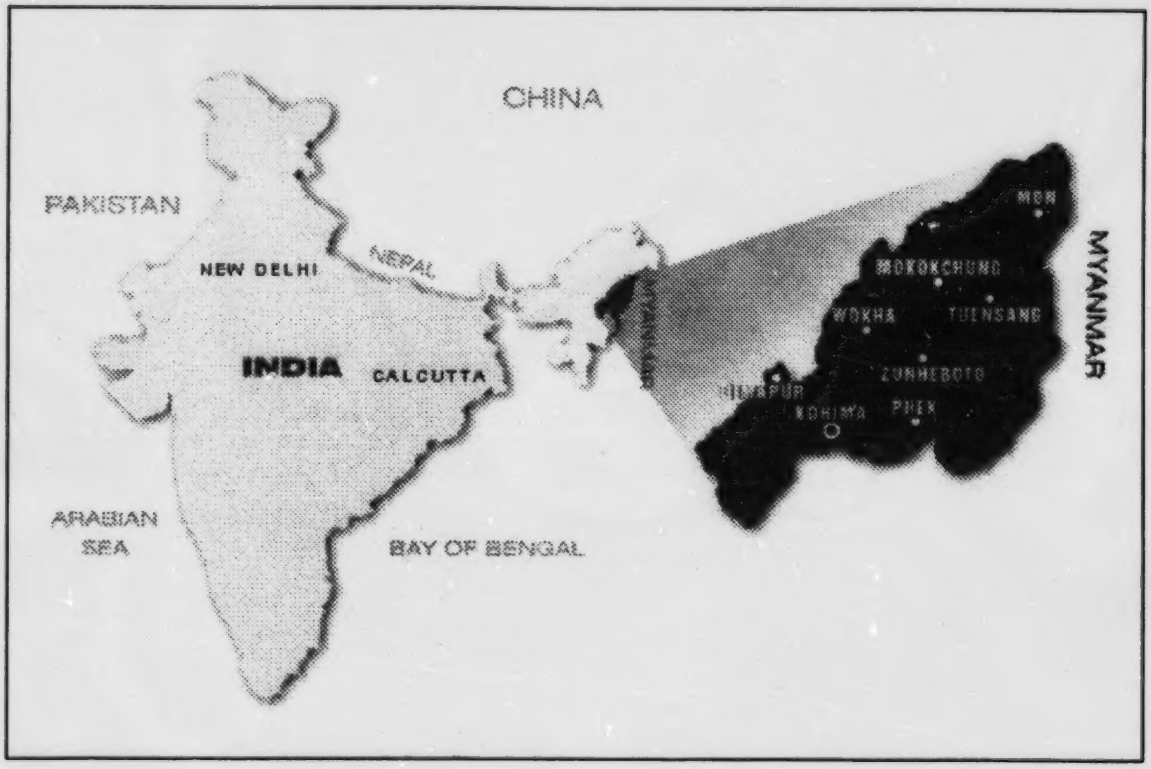
Nagaland Environmental Protection and Economic Development Project:

A Self-Assessment Using Outcome Mapping

Kohima, October 18-20, 1999



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Introduction

The Nagaland Environmental Protection and Economic Development (NEPED) project is intended to improve the income and welfare of farmers in Nagaland uplands through improved agro-forestry practices and more sustainable resource management. The project aims to build the capacity of Nagamese researchers to work with village communities in developing options for progressive intensification of land-based resource use, sustainable technologies and resource management systems. The project uses participatory research approaches and draws on local innovations and genetic resources.

The project began in1994. It was funded by the Canadian International Development Agency (CIDA) Fund, the India-Canada Environment Fund (ICEF) and managed by the International Development Research Centre (IDRC). In October 1999 the project undertook a self-assessment based on Outcome Mapping at a project workshop held in Kohima, home base of the Project Operations Unit (POU) and capital of Nagaland. The Outcome Mapping methodology is designed to capture the changes in behaviours which NEPED has helped support to meet its objectives.

The workshop was attended by the POU staff as well as by the two staff of the Project Coordinating Unit (PCU): Merle Faminow, Project Director; and Raj Verma, Deputy Secretary to the Government of Nagaland for externally aided projects. The workshop was facilitated by Fred Carden from the Evaluation Unit of the International Development Research Centre (IDRC).

Self assessment is not meant to replace external review of the project. Rather it is meant to capture, from the perspective of the project team, the most important and salient events (both positive and negative) in the accomplishments of the project, and to understand the factors which have contributed to success. It is a learning-oriented approach and the intent is that the findings of the team will help them to define their activities for the remainder of the project as well as learn from their experiences. As a side effect, self-assessment may also contribute to planning for future activities of the team or any of its members inside or outside the NEPED project.

Methodology

A full outline of the methodology can be found in "Outcome Mapping: Planning, Monitoring and Evaluation - Focused on Changes in Partners", a Facilitation Manual from the Evaluation Unit of the International Development Research Centre <http://www.idrc.ca/evaluation>.

Key Characteristics of the Outcome Mapping Approach

- It is based on the understanding that the most critical element of any development project is the changes in people, groups, organizations that are supported by the project (capacity built). It therefore focuses on these changes, using products developed as a means to the end of change.
- It focuses on how the project performed well rather than how well the project performed. This is consistent with a learning-based approach to assessment and is consistent with the need to evaluate from the perspective of the organization engaged in the activity.
- Outcome Mapping allows a project to take credit for making progress towards its goal, not only for final achievement of that goal. In doing so it recognizes that the final goals are outside the control of most projects, but nevertheless encourages them to maintain a vision and to seek the development challenges.
- Outcome Mapping addresses both the outcomes the project is seeking to obtain (Outcome Challenges) and the actions which the project has taken to ensure success (Organizational Practices). Graduated progress markers - expect to see, like to see, love to see - are identified for each of the outcome challenges that the project is trying to bring about. These progress markers represent either the number of boundary partners exhibiting change and/or the depth or quality of change exhibited by the boundary partners. ***"Expect to see"*** progress markers can be characterized generally as requiring mainly the passive participation of the boundary partners receiving the grants, such as, for example, taking the training offered. ***"Like to see"*** progress markers reflect on active participation by the boundary partners, such as changing operations or structures and/or requesting different training or support. ***"Love to see"*** progress markers represent transformative change in boundary partners, who have taken the ideas of the project as their own and are acting as change agents vis-à-vis project goals.

The Workshop Process

Outcome Mapping was applied in a participatory workshop led by a facilitator (a list of participants can be found in Appendix VI). Participants engaged in three main assessment exercises:

1. Articulation of the project vision and mission statements in outcome mapping terms (i.e behaviourial terms).

2. Mapping and Assessment of Project Results: Outcome Challenges and progress markers, data, performance assessment including strengths and weaknesses.

3. Mapping and Assessment of POU Performance: Organizational Practices[1], progress markers, data, performance assessment.

NEPED Vision and Mission:

Participants discussed the objectives and activities of the project and defined the vision and mission of the project in outcome terms. This did not change the intent of the project, which is virtually complete at this stage, but rather re-cast the objectives in terms of the desired behavioural outcomes. The Vision and Mission therefore reflect changes in behaviour in the way they are framed. This creates an effective link between the vision and the activities of the project. The Vision and Mission are presented as the framework within which data was defined.

NEPED Outcomes

Participants re-framed the work the project has been doing with its boundary partners (farmers, local institutions, Village Development Boards/Village Councils [VDBs/VCs], and State agencies) in terms of the desired outcomes and summarized these in an Outcome Challenge Table. They then assessed the project's progress on each outcome challenge, based on available data, and identified weaknesses and gaps. In the case of each gap or weakness identified, the workshop participants discussed whether NEPED could begin to deal with it within the project, or if it represented a longer term problem to be dealt with in the future. Some data was not available at the workshop. Participants were selected as responsible for identifying that data and submitting it to the POU for inclusion in the final report.

NEPED Performance

In a third set of workshop exercises, participants assessed the effectiveness of the POU's implementation of the project in terms of seven key organizational practices. The practices are not directly related to specific outcomes, but focus on activities in which the POU engages to ensure

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[1]At the time of the NEPED Workshop these were identified as roles.

that it adapts to changing needs, remains current and addresses the concerns of its partners. The group identified success markers for each organizational practice and then used available data to assess the POU's progress.

The Workshop Outputs

The two primary outputs of the workshop were:

- an assessment of NEPED's progress in terms of four outcome challenges, and
- an assessment of the performance of NEPED itself in terms of seven identified organizational practices.

The data are presented in two main sections of this report. In the section on NEPED Outcomes, a results map presents a summary of the data related to each of the outcome challenges (detailed comments can be found in Appendices I-IV). Data and/or evidence provided to illustrate how or why a particular rating scheme was selected for each of the progress markers is highlighted in bold. A table following each results map summarizes the gap and when it could be dealt with (either within the remaining eight months of the project, or in a post-NEPED phase). The section on the Performance Scorecard presents the organizational practices and success markers identified, the data collected, and a summary of the group discussion.

Data Collection Methods

As with most assessment and evaluation, the collection of data after the fact is more difficult than systematic on-going data collection throughout a project. The workshop participants employed a number of methods and strategies to deal with gaps in available data, including:

- ❑ In collecting data on the Outcome Challenges, the group developed the following rating scheme for assessing level of achievement:

  High = 80% or more (80% +)

  Medium = 26% - 79%

  Low = 25% or less (0 - 25%)

- ❑ This rating scheme represents the number of boundary partners exhibiting change. As such, these numbers identify the percentage of farmers, local institutions, VDBs/VCs and state agencies that have exhibited a change in behaviour due to the project.

- ❑ To determine a count for each success marker in the seven POU organizational practices, the entire group brainstormed for approximately 15 minutes. The product of this particular exercise was data on the POU's performance on each organizational practice.

- ❑ A one-hour brainstorming was held on each Outcome Challenge. Outcome Challenge 1 was done in plenary. The remaining three were drafted by small groups and presented to the plenary, where adjustments were made based on the knowledge and experience of team members from other districts.

- On items where no data was available, but on which the POU members had strong experience, ratings were based on the collective judgement of those present. Following the workshop these ratings were reviewed with knowledgeable members who could not attend and adjusted accordingly.
- Throughout the workshop, participants identified sources of some of the missing data. POU team members were assigned to collect specific data following the workshop and these were added to the report, ratings verified and adjusted accordingly.

Background

Description of the NEPED Project

Traditionally in Nagaland, jhum cultivation was productive and sustainable. Honed over thousands of years, it is a system well suited to the needs of traditional subsistence farmers, with multiple intercropping of up to 60 food crops in one field. After one or two years of use, fields go into fallow. Farmers move to the next plot and forest land to protect the soil and allow for a build-up of nutrients.

When the cycle lasts 15-20 years, jhum is sustainable. However, increasing population has led to a shortened jhum cycle and land degradation. A possible alternative to jhum cultivation is terrace cultivation. But this, too, has its limitations because extensive parts of Nagaland are too hilly for economic use of terracing. Farmers must, therefore, cut down more primary forest for their food needs.

In Nagaland, out of a total area of 7,000 sq km of jhumland, around 500 sq km is cleared of vegetation and burned annually for jhum cultivation. About 70% of the rural families subsist on jhum cultivation. As the land belongs to the people and is not owned by the State, there is hardly any way of externally regulating the land utilization.

There were two confounding problems:

- The foremost problem is the cultural reliance on jhum cultivation
- Subsidiary to this is the large-scale depletion of the natural forest caused by timber extraction

Sustainable development of Nagaland is a high priority. With this viewpoint, the Nagaland Environmental Protection and Economic Development (NEPED) project was implemented in 1994, the first internationally-funded development project ever in Nagaland.

Over the course of the past six years, the strategy of farmer-led development, testing and demonstration of agro-forestry-based intensified systems has proven effective. Farmers have actively participated in sharing their traditional knowledge with new concepts to bring about farmer-tested improvements.

The following observations can be made:

- NEPED has broadly reached down to the grassroots level, with a large share of project benefits going directly to farmers across most villages of Nagaland.
- NEPED has served as a catalyst for the Government of Nagaland, helping to encourage and spread new ideas for project management and implementation. This has been facilitated by the establishment of the Project Operations Unit as a special task force to implement NEPED.

The botanical wealth in Nagaland has not yet been properly documented and most of the capacity to preserve it for the next generation of Nagas exists at the village level, in the elders and local experts who store an "oral botanical" record. By working directly with the men and women in the various villages of Nagaland, the project officers of NEPED have helped ensure that the record will be saved for the next generation.

The NEPED Outcome Assessment

NEPED Vision Statement

Throughout Nagaland, farmers make better use of jhum fields, engage in marketing and value-added activities on their lands, leading to increased land values. Farmers and communities are less dependent on government and are generating employment locally. Environmental awareness is increased among villagers and village institutions. Capacity is increased, resulting in stronger governance structures and stronger local institutions. Groups in Nagaland play a leadership role in the North East and beyond, in support for traditional agricultural systems and enhanced environmental protection. Better use of village funds results in social improvements. Social problems are reduced as villagers are empowered and economically developed. Out-migration from the rural areas is reduced as more people are gainfully employed and the rural communities are economically viable.

NEPED Mission Statement

NEPED employs a range of strategies to create mass awareness and motivation for participation in the program. NEPED works directly with villagers and provides financial incentives and technical assistance to, and engages in experimentation with, farmers and relevant local and national organizations in order to strengthen traditional agricultural practices. NEPED supports the decentralization of decision making and the empowerment of women. To accomplish these things, NEPED continues to learn on an on-going basis and establishes and models the work culture which will support achievement of its vision.

NEPED Outcomes

Summary of Outcome Challenges

Outcome Challenge	
1.	NEPED intends to see ***farmers***, both male and female, with a better understanding of traditional agricultural systems, and improving their practice using improved land use methods. Mass replication of improvements is taking place along with improvements in agro-forestry techniques. Farmers are testing productive ideas and innovations. Women farmers are empowered and mobilized to participate in agro-forestry activities. Value-added activities on fallow land become a viable alternative.
2.	NEPED intends to see ***local institutions*** that are convinced about the relevance of the project concept, and thereby are motivated to incorporate tree plantation as an annual activity. Environmental awareness is increased resulting in biodiversity conservation. Through this, they start influencing local decision-making concerning the importance of planting trees in jhum fields. Some groups approach financial institutions for support to initiate their own programs independently.
3.	NEPED intends to see ***VDBs/VCs*** that are supporting effective implementation of NEPED at the local level, through Test Plot owner selection, resource mobilization and community participation. VDBs (Village Development Boards) and VCs (Village Councils) implement development activities and act as agents of change by applying funds and involving village residents and groups in a collaborative, transparent and equitable manner. As the central village decision bodies they will pass resolutions and influence the state government to act in the interests of villagers.
4.	NEPED intends to see ***State agencies*** that engage in multi-disciplinary and cross-departmental cooperation at state and field levels, with the objective of community-based participatory approaches to project planning. Adequate funding, support and security is provided to ensure community access to the project in a transparent and equitable manner that leads to sustainable development and better governance.

NEPED Results Map - Outcome Challenge #1

Outcome Challenge #1

NEPED intends to see ***farmers***, both male and female, with a better understanding of traditional agricultural systems, and improving their practice using improved land use methods. Mass replication of improvements is taking place along with improvements in agro-forestry techniques. Farmers are testing productive ideas and innovations. Women farmers are empowered and mobilized to participate in agro-forestry activities. Value-added activities on fallow land become a viable alternative.

Detailed comments on each of these progress markers can be found in Appendix I.

EXPECT TO SEE - PROGRESS MARKERS

Progress Marker 1	Rating	Data
Trees are planted on test plots	H (80% +)	**Over 7 million trees planted in 1808 test plots.** COMMENTS: Over 7 million trees were planted in 1808 test plots under the project. Information on distribution by species and district is shown in Appendix I.

Progress Marker 2	Rating	Data
Improved soil conservation measure in test plots	M (26% - 79%)	**Approximately one-third of the farmers indicated that they would use this style of trench land shaping in the future.** COMMENTS: Most farmers (about 90%) used traditional erosion control methods prior to test plots being established in their villages. After test plots were established in the villages, small increases occurred in the NEPED style of trench land shaping and about one-third of farmers indicated that they would use this style of trench land shaping in the future. Villagers indicated their intention to use the NEPED style of trench erosion control.

Progress Marker 3	Rating	Data
Women farmers participate in NEPED	L (25% or less)	**93 Women Test Plots and 80 Women Nurseries were established between 1996 and 1999.** COMMENTS: In 1998 NEPED began to encourage women to establish tree nurseries. There is considerable potential for sustainability and replication, leading to the establishment of a local tree nursery sector in Nagaland. This process is already well underway.

Progress Marker 4	Rating	Data
Nurseries are developed	H (80% +)	**Central nurseries in all district headquarters were initially developed to meet the growing demand for saplings.** COMMENTS: NEPED shifted to more sustainable approaches, including having women own and manage nurseries since there is short-term utilization of land and women can get direct economic benefit be selling the saplings. In addition to other nurseries, 80 women nurseries have been developed throughout Nagaland.

LIKE TO SEE - PROGRESS MARKERS

Progress Marker 5	Rating	Data
Mass replication takes place	H (80% +)	**Survey data shows that 68% of farmers who received test plots subsequently planted trees in another jhum field. Further, 86% of farmers who did not receive a test plot planted trees in a jhum field after the NEPED test plot was established.** COMMENTS: Virtually all villagers indicated that they were likely to plant trees in jhum fields in the future. The average area of trees planted in each village was estimated to be 38 hectares, with an average of 149,000 trees per village.

Progress Marker 6	Rating	Data
Increased utilization of well-adapted local varieties is seen	H (80% +)	**Over 70% of test plots and 65 % of replicate plots contained "other" species, outside the top ten. With the exception of Teak, all species can be considered indigenous to Nagaland.** COMMENTS: Species planted were highly varied. Test plots contained a more varied number of species than did the replicate plots - about 35% of trees on test plots were not in the top 9 listed species, while about 20% of trees on replicate plots were not listed in the top 9 listed species. Farmers have become increasingly aware of the economic value of local species and have planted them. Due to intervention of NEPED, villagers become more aware of the utility of local varieties of tree species for timber use.

Progress Marker 7	Rating	Data
Poly-culture is promoted over mono-culture	M (26% - 79%)	**On average, five different species were planted in each test plot and four species in replicate plots. Physical verification reports from all districts indicate that virtually all farmers have planted three species or more.** COMMENTS: Farmers who had test plots were encouraged by POU staff to allow natural re-growth and weed selectively to save valuable species. The data confirm that farmers have been doing this.

Progress Marker 8	Rating	Data
Farmers increased their use of alder and other nitrogen fixing species	M (26% - 79%)	**Data on species show nitrogen fixing varieties were planted across the state. Villagers now replant wild saplings and have started raising alder and albezia saplings, along with other species in nurseries.** COMMENTS: Alder plantation is most pronounced in Zunheboto District and, to a lesser extent, Tuensang due to the predominantly high altitudes.

Progress Marker 9	Rating	Data
Increased demand for and availability of planting materials	M (26% - 79%)	**There is an increased demand for saplings due to test plots, replication and the government's declaration of 1999 as the "Year of Tree Plantation". The increased demand for planting materials caused seedlings to be brought from other districts and even from outside the State, and has created a ready market for saplings from local nurseries thus establishing a tree nursery sector.** COMMENTS: In 1998, there were only two nurseries in Phesama village, by 1999 there were 24 replicate nurseries established by people using their own resources. In Mokokchung District, many private nurseries were established as well as some established by societies.

Progress Marker 10	Rating	Data
Enhanced preservation of biodiversity	H (80% +)	**Prior to NEPED, people were planting species known for their timber value. During training and field visits, farmers learned that various species should be planted depending on altitude variations and uses.**

Progress Marker 11	Rating	Data
Empowerment of women is increased	M (26% - 79%)	**213 women from 123 villages have participated in women empowerment training. Nine women from Phek District attended a one-week training on small-scale tea plantation in Mokokchung District.** COMMENTS: NEPED is the first organization to address gender issues in Nagaland. A tour to Karnataka State for women from all districts of Nagaland was organized by NEPED. In a presentation to the Ministry of Environment and Forests, the president of the Naga Mothers Association highlighted the role of NEPED in women's empowerment and in recognizing and promoting the role of women in agriculture.

Progress Marker 12	Rating	Data
No expansion of tree plantation into natural forests	H (80 % +)	**Only 3 of the 28 villages in the survey reported that primary forest had been jhummed since the NEPED project began. One was a large area of over 150 hectares; the other two had jhummed only small tracts. Averaged across the sample of 28 villages, this amounted to less than 6 hectares per village.** COMMENTS: At lower altitudes some large-scale tree plantation has occurred, often on previously forested land. This activity, mainly by high income people and not jhum farmers from villages, will require continued monitoring.

LOVE TO SEE - PROGRESS MARKERS

Progress Marker 13	Rating	Data
Sustainable economic development	L (0 - 25%)	**In Viswema there are as many as 22 privately owned nurseries who have replicated the NEPED nursery.** COMMENTS: Due to the increased demand for tree saplings, many villagers are starting nurseries. Some progress towards establishing more complex agro-forestry systems, including fallow cash crops, but additional adoption will be necessary. Major issues for the future: marketing of timber from test plots, beginning in about 2010, and farm level benefits.

Progress Marker 14	Rating	Data
Farmers motivate fellow farmers	M (26% - 79%)	**Almost all replicators report that someone in their household planted trees after the NEPED test plot was established, and that they or someone in their household intends to plant trees in jhum fields in the next year.** COMMENTS: During farmer's training in the district, farmers shared their best practices with other participants. Evaluations found no significant difference between test and replicate plots. This implies that the village farmers watched and learned from the experiences of the test plot operators.

Progress Marker 15	Rating	Data
Khonoma system is widely replicated	L (0 - 25%)	**In Porba Village of Phek District, a test plot farmer has replicated the Khonoma system of jhum farming. He has constructed permanent contour bunds using stones and boulders in order to check soil erosion, much beyond the NEPED specifications.** COMMENTS: Alder and other tree species have been planted with vegetable crops. This has resulted in a jhum cultivation system that is sustainable.

GAPS AND WEAKNESSES

The following table outlines the gaps and weaknesses identified by the workshop participants with regards to the progress markers for Outcome Challenge #1. These gaps and weaknesses are categorized as issues to be addressed currently (i.e. NEPED) or in the future (i.e post-NEPED).

Gaps and Weaknesses	*NEPED or post-NEPED*
Progress Marker 8: cause for some concern (poor data on alder and other nitrogen fixing species)	NEPED
Develop roles for women that are best-suited to their needs	post-NEPED

NEPED Results Map - Outcome Challenge #2

Outcome Challenge #2

NEPED intends to see ***local institutions*** that are convinced about the relevance of the project concept, and thereby are motivated to incorporate tree plantation as an annual activity. Environmental awareness is increased resulting in biodiversity conservation. Through this, they start influencing local decision-making concerning the importance of planting trees in jhum fields. Some groups approach financial institutions for support to initiate their own programs independently.

Detailed comments on each of these progress markers can be found in Appendix II.

EXPECT TO SEE - PROGRESS MARKERS

Progress Marker 1	Rating	Data
Increased awareness of rich biodiversity of the region	H (80% +)	**In Viswema village 103 paddy varieties have been cultivated (a detailed study is available from the POU). Further, local restrictions on harvesting plants and animals in community forests are being established and enforced.** COMMENTS: Throughout Nagaland, villagers are beginning to take steps to preserve biodiversity. Community groups such as student unions are often encouraging the establishment and enforcement of the restrictions on harvesting plants and animals in community forests.

Progress Marker 2	Rating	Data
NEPED approach results in activities	M (26% - 79%)	**In Mokokchung District, POU and District Project Team (DPT) members distributed 100,000 saplings, procured from private nursery owners, in each block. As well, at least three government establishments undertook tree plantation funded by NEPED.** COMMENTS: The declaration of the year 1999 as the "Year of Tree Plantation" is the direct outcome of the conviction of the NEPED approach of sustainable development of natural resources through peoples involvement. Students' communities in several districts requested and received saplings for plantation in village areas. The following government establishments undertook tree plantation funded by NEPED: Nagaland Secretariat Complex, 1st NAP (timber and avenue trees), Army Jakhama (grafted fruit trees).

Progress Marker 3	Rating	Data
Tree planting is incorporated as an annual event	M (26% - 79%)	**The Semo clan of Khonoma village decided to plant trees by every household of the clan on 20th May every year. The Baptist church and various youth organizations adopted resolutions to plant trees.** COMMENTS: Many villages in Nagaland have resolved to plant trees every year. The Semo clan of Khonoma is one example. As well, to encourage planting of trees and protection of young plants, the Kohima Village Council has banned letting loose of domestic animals (cattle) all through the year in effect from the year 1999.

Progress Marker 4	Rating	Data
Local institutions succeed in getting funds for plantation	L (0 - 25%)	**Villages report receipt of funds and/or seedlings for tree plantation from government departments and other organizations such as Wastelands Development, Soil Conservation Department, Agriculture Department, Rural Development Department, NGOs and others.**

LIKE TO SEE - PROGRESS MARKERS

Progress Marker 5	Rating	Data
Environmental awareness leads to revival of indigenous knowledge	L (0 - 25 %)	**A participatory workshop with local experts (NEPED's "human databank") and the POU was held to establish information sources and ways of information dissemination. Three information approaches were selected.** COMMENTS: A participatory workshop with local experts and the POU in 1999 established that certain traditional Naga customs and usages, which were based on sound scientific reasoning, were being forgotten. The initial NEPED technical material was limited to basic information transmitted verbally to farmers in field training exercises. In July 1998, it was determined that a more formalized approach was necessary for three reasons: (1) the growing interest in tree plantation had outstripped the capacity of the POU to provide on-site training; (2) experience with over 3 years of farmer-led experimentation had produced important knowledge about the application of agro-forestry in local conditions; and (3) indigenous knowledge had been accumulated by the POU but required formal recording. The information approaches selected were: a series of briefing papers to disseminate key information quickly, a resource kit describing best practices for improving traditional agriculture in Nagaland, and documentation and database of local food crop varieties and medicinal plants.

Progress Marker 6	Rating	Data
Experience is shared with external agencies	L (0 - 25%)	No data

Progress Marker 7	Rating	Data
Increased participatory approach to local decision making	L (0 - 25%)	No data

Progress Marker 8	Rating	Data
Local institutions play a key role in decision making	L (0 - 25%)	▸ **Semo clan of Khonoma Village decided to plant trees on 20th of May every year** ▸ **Kikhi clan of Viswema Village decided that every household will plant 100 tree saplings each year in 1999** ▸ **Tseminyu Student's Union planted tree saplings in jhum fields with financial aid from NEPED** ▸ **Zhadima women's community established a test plot in their village** ▸ **Tsiemikhuma Baptist church established a test plot in the village** ▸ **Patkai Christian College established a test plot on their own land**

Progress Marker 9	Rating	Data
Local institutions act independently	L (0 - 25%)	No data

Progress Marker 10	Rating	Data
They network among themselves	L (0 - 25%)	No data

Progress Marker 11	Rating	Data
Participate in district/state level workshops/conferences	M (26% - 79%)	**In the 1998 fiscal year, 14 workshops were held in which POU team members made formal presentations and interacted with 3,400 farmers and students about the role of agro-forestry in jhum cultivation, as well as general environmental protection needs.** COMMENTS: A two-day seminar was held at Angami Baptist Council of Churches, Mission Centre, Kohima in February 1999; 92 participants from 40 villages took part. Keynote addresses were delivered on environment conservation and methods of tree farming by direct sowing. NEPED has stimulated many goups in Nagaland to discuss tree plantation and the environment. Examples of activities in 1999 include: ▸ Youth Society, Viswema - 900 people attended talks on tree nursery management techniques and plantation of valuable trees ▸ At Zhekiye Village, Zunheboto, student unions of 18 villages were addressed regarding nursery management, tree culture in jhum fields and the role of the VDB in NEPED concept ▸ Workshop at Chetheba, Phek on local resource inventories, tree plantation, cash agro-forestry crops; 30 participants (including 8 women) from 9 villages ▸ Student union members at Satakha, Phek on role of students in village development; 1500 participants (students plus village leaders) ▸ Mass motivation program on importance of tree plantation and environmental conservation in Punglwa A and B Village, Kohima; 40 village elders and women leaders

Progress Marker 12	Rating	Data
Local institutions succeed in obtaining financial support from financial institutions	L (0 - 25%)	No data

LOVE TO SEE - PROGRESS MARKERS

Progress Marker 13	Rating	Data
Local institutions initiate their own programs	M (26% - 79%)	

Progress Marker 14	Rating	Data
Local institutions are self-sustaining	L (0 - 25%)	No data

Progress Marker 15	Rating	Data
Local institutions convince Government to initiate schemes elsewhere	L (0 - 25%)	No data

GAPS AND WEAKNESSES

The following table outlines the gaps and weaknesses related to Outcome Challenge #2 as identified by the workshop participants. The gaps and weaknesses have been categorized as issues to be addressed currently (i.e. NEPED) or in the future (i.e. post-NEPED).

Gaps and Weaknesses	*NEPED or post-NEPED*
Need to develop a formal information package on NEPED for use with local institutions	NEPED
Begin to work with youth directly (e.g. youth groups)	NEPED (e.g. make use of documentary on the project as an educational tool).
Government of Nagaland could build from NEPED approach and adopt in similar institutions	post-NEPED
Extend the participatory team work approach of NEPED to the local institutions as a way to help strengthen them	post-NEPED

NEPED Results Map - Outcome Challenge #3

Outcome Challenge #3
NEPED intends to see ***VDBs/VCs*** that are supporting effective implementation of NEPED at the local level, through Test Plot owner selection, resource mobilization and community participation. VDBs and VCs implement development activities and act as agents of change by applying funds and involving village residents and groups in a collaborative, transparent and equitable manner. As the central village decision bodies they will pass resolutions and influence the state government to act in the interests of villagers.

Detailed comments on each of these progress markers can be found in Appendix III.

EXPECT TO SEE - PROGRESS MARKERS

Progress Marker 1	Rating	Data
VCs / VDBs support NEPED	H (80% +)	**Only one village failed to implement the project.** COMMENTS: VCs and VDBs have a vital role in successful implementation. They select, facilitate and monitor the performance of the test plot owners. They approve release of payment. They discuss and decide which plots in the village are to be brought under jhum cultivation in a particular year. They are involved in development activities and dissemination of information.

Progress Marker 2	Rating	Data
VCs / VDBs select the appropriate test plot owners	M (26% - 79%)	**Most VCs / VDBs selected jhum plots owned by committed, experienced and enthusiastic farmers. In a few cases, the right test plot owners were not selected, maybe due to land ownership problems, shortage of land, or traditional systems such as the Chieftain system where the village chief owns all the land.** COMMENTS: Establishment of test plots (TPs) in some villages were deferred to the next year due to poor selection of farmers and sites. However, POU intervention was effective in re-allocating test plots to better farmers. In many villages, societies, clans or communities have been selected to establish TPs. It was observed that TPs owned by individuals have done better than community managed TPs. Survey data indicates that people allocated test plots were rated, on average, as wealthy. However, because these were usually influential people in the local community, better diffusion to other villages occurred.

Progress Marker 3	Rating	Data
VCs / VDBs provide local resources, knowledge and actively participate	H (80% +)	**Local resources like land, labour, indigenous planting materials, local knowledge and participation were enthusiastically provided. POU members documented valuable information on indigenous tree species and methods of planting, traditional knowledge and customs etc.** COMMENTS: The members of VCs/VDBs are generally village elders with knowledge, experience and authority in the village. Their contributions to the successful implementation of the NEPED project are remarkable. The POU members worked closely with them in selection, rectification and monitoring of the village projects. Inadequacies were sorted out and resolved on the spot. Their participation activates the villagers and ensures proper emulation of the NEPED concept. The success of the project is due to the active participation of local farmers well versed with the local conditions of their village, tree varieties which can thrive in the soil condition of the village, plant propagation methods of local suitable varieties of tree species, and food crop-tree compatibility.

Progress Marker 4	Rating	Data
The Leadership gets convinced about the NEPED concept	H (80% +)	**Since 1996, the enthusiasm shown by villages to implement the NEPED project shows the extent to which the VCs/VDBs are convinced about the reliability of the project. Replications are also evidence of acceptability of the concept. There have been instances of leadership in villages planting trees in large scale in their own jhum fields.** COMMENTS: Every year the POU has conducted VC/VDB and farmer training in the District Headquarters, along with DPT / Field Staff. In all the test plot villages at least the VC Chairman and VDB Secretary received training and interacted with the VC/VDB during each visit to their villages.

LIKE TO SEE - PROGRESS MARKERS

Progress Marker 5	Rating	Data
VCs / VDBs help monitor NEPED activities	H (80% +)	**The VCs/VDBs are responsible to oversee the implementation of the NEPED project in the villages. They are required to report to the District Project Team/Sub-Divisional Project Team (DPT/SDPT) about the work carried out in the test plots before release of payments. They have also been made answerable for failure of the project in the village or if funds are misappropriated.** COMMENTS: Some villages have set very active roles. For example, the Ghokimi Village Council under Pughoboto Sub-Division has passed a resolution to monitor and provide support to the NEPED project until the trees have matured. If the test plot fails, the Village Council will impose a penalty on the landowners and ask them to pay back the amount spent by the project to the Village Council.

Progress Marker 6	Rating	Data
VCs / VDBs act as village level dissemination agents of NEPED	M (26% - 79%)	**Almost half of the villages in the sample (12 out of 28) have passed resolutions to plant trees.**

Progress Marker 7	Rating	Data
VCs / VDBs are more environmentally conscious	L (0 - 25%)	**People are more environmentally conscious in both TPs and other activities:** ▸ **Naturally regenerated saplings in jhum fields are now preserved** ▸ **Several village councils have passed laws concerning control of fire and cattle** ▸ **In some villages like Viswema, the Chuchungyimla, Semomia and Kikhi clans have resolved to plant at least 1000-2000 tree saplings by each household** ▸ **Seasonal hunting laws have been enforced in order to avoid indiscriminate killing of animals**

Progress Marker 8	Rating	Data
VCs / VDBs collaborate with local institutions	L (0 - 25%)	**Some VCs/VDBs collaborated with local institutions. For example:** ▸ **Village Councils of Tesophenyu Village, Tseminyu Village and Kichilimi Village collaborated with their village students' union for plantation** ▸ **The Lotha Hoho churches, women's groups and youth were involved and collaborated with the POU in implementing "Year of the Tree Plantation" program**

Progress Marker 9	Rating	Data
VDB funds are provided for replication	L (0 - 25%)	**Nine of the 28 villages sampled have used VDB funds for tree plantation.** COMMENTS: In many cases VDB funds are not invested in long-term tree plantation. However, some villages utilized Employment Assurance Scheme money for tree plantation, and the women's VDB group from Chumukedima Village has been utilizing its share (25%) of the annual grant-in-aid for tree plantation.

Progress Marker 10	Rating	Data
VCs / VDBs involve women in more schemes in decision-making	L (0 - 25%)	**At least 2 women members are selected in each VDB. They are granted 25% of the RD allocation and are to prepare their own schemes from the allotted fund. Field experience suggests that not all VDBs have allocated women their share of VDB funds. Village elders report that most of the women (96%) have been receiving their share of funds though only 11 percent have used these funds for planting trees.** COMMENTS: Although women are allowed to be VDB secretary or members, in some villages and among some tribes, the Naga customary law does not permit women to participate in village community meetings where decisions are made. Women were not allowed to own land in any of the villages included in the sample survey, although they could own trees in almost one-third of the villages. One village council allowed women to purchase a plot of land from their 25% share of VDB fund in order to enable them to initiate their own development activities.

Progress Marker 11	Rating	Data
There is transparency and accountability in development activities	L (0 - 25%)	**In areas where power is not shared with other people, there is a lack of transparency and accountability. However, when NEPED members intervened during field visits, training, empowerment training, etc., transparency was improved.**

Progress Marker 12	Rating	Data
VCs / VDBs plan and implement development activities	M (26% - 79%)	**All villages are allocated an annual grant-in-aid based on the number of households in the village. More and more villages are now implementing income generating schemes like horticulture, live stock etc. including schemes such as weaving units, kitchen gardens etc. by women's groups.**

LOVE TO SEE - PROGRESS MARKERS

Progress Marker 13	Rating	Data
VC / VDB pass resolutions / laws related to sustainable development	M (26% - 79%)	**The Chakesang Peoples' Organization (CPO) passed laws within their district banning the indiscriminate burning of jungles, wanton bio-prospecting and extraction of NTFP, hunting, etc. They have also passed resolutions upholding the need to conserve bio-diversity and maintaining the ecological balance. Resolutions are being enforced, with substantial fines imposed for non-acceptable activities.**

Progress Marker 14	Rating	Data
Village funds are utilized for setting up marketing cooperatives	L (0 - 25%)	No data

Progress Marker 15	Rating	Data
Influence on state legislation, laws and development plans	L (0 - 25 %)	No data

GAPS AND WEAKNESSES

The following table outlines the gaps and weaknesses identified by the workshop participants with regards to the progress markers for Outcome Challenge #3. These gaps and weaknesses are categorized as issues to be addressed currently (i.e. NEPED) or in the future (i.e post-NEPED).

Gaps and Weaknesses	*NEPED or post-NEPED*
Significant amounts of missing data for which systems need to be developed	NEPED (e.g. hire a consultant to assist with design)

NEPED Results Map - Outcome Challenge #4

Outcome Challenge #4
NEPED intends to see ***State agencies*** that engage in multi-disciplinary and cross-departmental cooperation at state and field levels, with the objective of community-based participatory approaches to project planning. Adequate funding, support and security is provided to ensure community access to the project in a transparent and equitable manner that leads to sustainable development and better governance.

Detailed comments on each of these progress markers can be found in Appendix IV.

EXPECT TO SEE - PROGRESS MARKERS

Progress Marker 1	Rating	Data
Cooperation, participation and effective team work between DPT/SDPT	M (26% - 79%)	**Overall, despite some difficulties, utilisation of DPT/SDPT is necessary in Nagaland due to difficult travel and communication systems. Good teamwork is best assured when the DPT/SDPT are involved in planning.** COMMENTS: Cooperation and teamwork varied across the districts. For example, in Mokokchung District the DPT is well organized, cooperating with the POU under the chair of the Deputy Commissioner, and there were regular monthly meetings for the NEPED project. In contrast, cooperation and participation of DPT/SDPT in Wokha District was poor.

Progress Marker 2	Rating	Data
DPT/SDPT meet training and verification responsibilities completely and on time	M (26% - 79%)	**Overall, experiences varied across districts. For example:** ▸ **In Mokokchung, the DPT training was conducted five times in the district. Work was usually done on time.** ▸ **In Wokha, DPT/SDPT training was conducted on time. Verification was completed, but not on time.** ▸ **In Zunheboto, training was conducted on time, except in the first year of the project. Verification responsibility is given to the DPT & SDPT but the response is irregular as all the members are not equally active.**

Progress Marker 3	Rating	Data
POU officers are released from departmental responsibilities to fully participate in NEPED activities	L (0 - 25%)	No Data

Progress Marker 4	Rating	Data
Timely funds are provided to NEPED participants	L (0 - 25%)	**Funds from the state government were quite irregular.** COMMENTS: In contrast to state funding, except in the year 1997, funds coming from the donor's side were received and implemented in time throughout the project period. Local resources were also always available in time.

LIKE TO SEE - PROGRESS MARKERS

Progress Marker 5	Rating	Data
Adequate funds are provided for district and field mobility and travel	M (26% - 79%)	**The DPT and Field Staff participating in NEPED have been requesting travel allowances, but only the fuel cost was reimbursed to the officers.** COMMENTS: Funds for field mobility were not adequate for the District teams. Due to the financial constraints of the Government of Nagaland, funds were not released in time. POU movements to the districts were adversely affected. The two tier system complicated project implementation, as POU travel fund availability was superior to DPT/SDPT/Field Team travel support.

Progress Marker 6	Rating	Data
Capacity of DPT/SDPT is increased	M (26% - 79%)	**The capacity among most DPT members was increased. More specifically, members from Agriculture, Wastelands Development and Forest Departments in the DPT/SDPT have become more active in their department's work.** COMMENTS: Examples of increased capacity include: ▸ Kohima DPT is capable of imparting training on tree farming to villages without assistance from POU ▸ Most DPTs/SDPTs supervised the "Year of Tree Planting" 1999 independently in their respective districts ▸ DPTs are familiar with the reporting/verification formats and use it themselves ▸ The DPT members have adapted well to the NEPED methodologies and are even using it in executing their present departmental works (eg. PRA)

Progress Marker 7	Rating	Data
State funds are provided for plantation at community level	H (80% +)	**The following provides examples of how state funds are provided for plantation at the community level:** ▸ **The programs of Agriculture and Wastelands Development Departments have adopted the NEPED approach.** ▸ **The state declared 1999 as the "Year of Tree Planting". An amount of Rs. 25 million has been spent by the state for this specific program.** ▸ **The departments of Rural Development, Wasteland, Forest, Soil Conservation and Agriculture in the government provided funds for the plantation schemes at the community level. For example, from 1998 the RD department has made it mandatory for all VDBs to allocate a sum of Rs. 250/- per household for tree plantation.**

Progress Marker 8	Rating	Data
SARS collaborates with POU on research activities	M (26% - 79%)	**Examples:** ▸ **Management of trees after 2 years cropping in jhum fields** ▸ **Introduction of shade loving economic plants for fallow management system** ▸ **Intensification of jhum fields by introduction of multipurpose tree species** ▸ **Intensification of jhum by introduction of appropriate soil conservation measures**

Progress Marker 9	Rating	Data
POU is invited to help build government capacity	H (80% +)	**A training school was set up to train the members of the Core Group consisting of three member teams from all the 57 departments in the state government. POU members have trained a total of 108 official and about 50 non-official staff since May 1998. Training continues.** COMMENTS: The concept of the Core Group was to expand on the multi-disciplinary and cross-cutting approach of the POU in NEPED into a larger horizon and incorporate it into the existing government set up to improve the work culture, governance and also enhance the efficiency of the state government staff.

Progress Marker 10	Rating	Data
POU multi-disciplinary approach is replicated by government	M (26% - 79%)	**Core Group members are taught essential skills on operating systems, word processing and data base inputs and management by members of the POU of NEPED.** COMMENTS: In August 1997, the Chief of Nagaland, Mr. A.M. Gokhale, asked all heads of departments in Nagaland to nominate 3 mid-level officers from their respective departments to join a select cluster of officers to be called the Core Group.

Progress Marker 11	Rating	Data
Government passes/enforces legislation to protect forest / crops	L (0 - 25%)	**The Nagaland Cattle Trespass Act, 1985 had been enacted in 1986 but could not be made enforceable pending notification in the State Gazette for 11 years. After the frenetic plantation activities that followed in the wake of NEPED, there was a public demand for protecting plantations from destruction by grazing cattle. This long pending law was finally notified on the 31st October, 1997 and is now being enforced.**

Progress Marker 12	Rating	Data
There is increase in the activities and use of funds	M (26% - 79%)	No data

LOVE TO SEE - PROGRESS MARKERS

Progress Marker 13	Rating	Data
Restrictions on sale of timber outside is lifted	L (0 - 25%)	No data

Progress Marker 14	Rating	Data
Forest Department increases forest protection	L (0 - 25%)	No data

Progress Marker 15	Rating	Data
Provision of transportation, storage and marketing infrastructure	L (0 - 25%)	**There is no separate directorate to oversee the development of agriculture marketing in the state. The weakness of the system is reflected in improper marketing practices, inadequacy of marketing infrastructure and absence of regulatory measures. Lack of transportation and communication facilities discourages marketing on commercial scale.**

GAPS AND WEAKNESSES

The following table outlines the gaps and weaknesses related to Outcome Challenge #4 as identified by the workshop participants. The gaps and weaknesses have been categorized as issues to be addressed currently (i.e. NEPED) or in the future (i.e. post-NEPED).

Gaps and Weaknesses	*NEPED or post-NEPED*
District offices saddled with additional responsibilities to implement NEPED without any incentives (financial or more staff)	post-NEPED (e.g. mini-POU in districts)
All field segments need to keep up with reporting if POU is to be able to report on time	post-NEPED (too late to have significant impact in project)

NEPED Performance Scorecard

This section of the report represents the shift from an external assessment to an internal assessment. Workshop participants assessed the effectiveness of the POU's implementation of the project in relation to seven key organizational practices. These organizational practices, although not directly related to the specific outcomes, focus on activities the POU engaged in to ensure its adaptability and relevance to the project.

The group identified the following graduated success markers. To determine a count for each success marker in the seven POU practices, the group held a brainstorming session for fifteen minutes. The result of this session produced several examples of success markers for each organizational practice. A description of the best examples for each success marker follows. All examples that were discussed during the workshop can be found in Appendix V.

Summary of Organizational Practices for Good Performance of NEPED

Organizational Practice	Description	Graduated Success Markers
One	Prospecting for new ideas and opportunities	# of ideas shared in the team # of ideas from indigenous knowledge integrated into the work of the project # of new uses for indigenous high value species (Timber/NTFP) documented and propagated
Two	Seeking feedback from key informants	# of times feedback from key informants is shared in POU # of times POU seeks solutions to a problem # of strategic changes in POU approaches
Three	Obtaining support of your next highest power	# of strategic contacts # of useful suggestions they made to us # of hoped for responses to requests we made
Four	Redesigning current products and services	# of changes (tweaks) made to existing products, services or operating environments # of significant upgrades or enhancements # of new products or services reflecting an advanced strategy
Five	Checking up on those already served to add value	# of boundary partners for whom additional services were provided # of incidents where feedback was shared and discussed in team # of partners who reported significant changes in what they do
Six	Sharing your best wisdom with the world	# of events/activities where best practices were shared with peers in other organizations # of new long term linkages outside the project # of times our work is quoted or used in other publications, media, or presentations
Seven	Experimenting to remain innovative	# of possible new areas that were discussed with the team # of new ventures into an area without previous experience # of experimental areas that proved successful and were repeated or institutionalized

Organizational Practice 1. Prospecting for new ideas and opportunities

Best Examples

Land Shaping

Land management in sloping agriculture is a major component in any land-based project. Topsoil erosion from the jhum (shifting cultivation) fields amounted to about 40 tons per hectare in Nagaland. The original NEPED concept of land shaping was designed to trap the topsoil by trenching and bunding. However, many farmers reported that labour demands were excessive. As a result, NEPED started by adopting farmers' traditional practice of using locally available materials as erosion barriers. This flexibility greatly helped the project and POU in the field operations, because the indigenous approach was more acceptable to farmers.

Collection and use of indigenous tree planting materials

Indigenous knowledge is a valuable source which can facilitate the empowerment and participation of the local people. Many indigenous plants that grow in Nagaland have multiple uses. They are easy to propagate by farmers and well adapted to local conditions. Farmers identify good mother plants for use as seed trees. Matured seeds are collected from the good healthy trees. Most seeds of high altitude tree species are collected during November to January.

Indigenous Fallow Management

With just one to two hectares being cultivated per household each year, and an ever rising population, the fallow period of jhum has come down to about nine years. This adversely affects the productivity of the land. Subsistence farmers, once almost totally self-sufficient in food, are now barely able to produce food for 8-9 months. Better fallow management systems that are biologically and economically sustainable and compatible with local socio-economic conditions are therefore needed.

Jhum fields are normally cultivated for two years in succession and thereafter left fallow until the next jhum. Local shade-loving crops, such as ginger, turmeric, cardamom and black pepper can be grown among trees. Also cover crops like velvet-bean, rice-bean or rubber-bean can be used to smother weeds, improve soil fertility, control soil erosion and conserve moisture. Deep-rooted trees draw many other nutrients that cannot be reached by crops and thereby increasing soil fertility.

Graduated Success Markers

12 Number of ideas shared in the team

9 Number of ideas from indigenous knowledge integrated into the work of the project

2 Number of new uses for indigenous high value species (Timber/NTFP) documented and propagated

Organizational Practice 2. Seeking feedback from key informants

Best Examples

Training expanded to women and other non-NEPED farmers

Farmers' training and women's empowerment training were conducted during the project, first only for NEPED participants. But when the demand was raised from other groups, training was extended to other non-NEPED farmers such as general farmers, DWRCA group leaders (Development of Women and Children in Rural Areas), and cooperative society leaders. Mass motivation programs at various levels were also conducted for various groups in order to create an awareness of tree plantation and to raise environmental consciousness.

The potential social impacts of mass tree plantations

A key informant from the Ministry of Science and Environment has raised a concern from experience in Shillong, where mass tree plantations have had a significant impact on social issues in the foothills. Rich people are buying land from the poor for creating large tree plantations. As a consequence, the poor are becoming poorer, and they are exploited. The gap between the rich and poor in this area is increasing. The influx of migrant labour for maintaining the plantations is also putting pressure on the district and will contribute over time to an identity crisis in Shillong. This is not a problem in hilly areas where NEPED is working as yet, but it is an issue and potential impediment that the POU has determined it will have to address in the foreseeable future. The POU has already started discussions with local key informants to counter this possible consequence.

Seeking advice from Local Experts

As the POU went about their field operations, they were confronted with many technical problems especially pertaining to the high fatality rate of certain tree species in specific areas. Where botanical science could not provide answers, the local experts, with their plethora of indigenous knowledge, had ready solutions to most of these problems. For example, this was a question asked of them in a NEPED workshop: "In a jhumfield, *Chukrassia* and *Cedrela spp.* were both planted, but only Cedrela survived. Why?"

Their answers:

- ❑ Cedrela is hardy and it smells, which repels insects.
- ❑ Cedrela has a property that can root–shoot at the location where the root is injured and so its propagation is a lot easier than that of Chukrassia.
- ❑ Chukrassia can be propagated like that of Alder, uproot 1-year old sapling and keep it near sprinkling water till new roots begin to appear and then plant.
- ❑ In this particular case Chukrassia seeds may have been collected from lower altitude and could not adapt to the local conditions.

Graduated Success Markers

11 Number of times feedback from key informants is shared in the POU

4 Number of times POU seeks solutions to a problem

4 Number of strategic changes in POU approaches

Organizational Practice 3. Obtaining support of your next highest power

Best Examples

Causing Chief Minister of Nagaland to:
a) seriously accept ideology and objectives of NEPED

b) keep this project portfolio under his direct charge

c) permit POU members to be divested from their respective departmental responsibilities

d) free NEPED from political and financial interference to achieve its implementation targets

Gender Component
Realizing the need for women's active participation in development activities, NEPED also included a gender component, though at a later stage. The gender component includes Women's Empowerment training where altogether 213 women covering 123 villages participated. Women's groups have established 93 test plots with technical and material support provided by the project and also 80 tree nurseries, earning good profits from sale of saplings. Besides these, field trips were organized for women groups outside the state to broaden their awareness.

Improved project reporting
The planned departure of the Project Manager in October, 1996, was followed by the unplanned resignation of the Assistant Manager in May, 1997. All progress and financial reporting up to that time had been initiated, monitored and finalized in the PCU at IDRC-SARO and the POU had not developed the capacity for self-reporting. The long period of time without a senior manager in the PCU (until the end of May, 1998) was quite disruptive to the reporting process. Since that time, NEPED has reported fully and regularly. In order to do so it was necessary to develop improved data management capacity and participation in the POU. NEPED was one of the first ICEF projects to adopt the RBM reporting format for progress reports.

Initially, the Project Steering Committee (PSC) did not play a significant role in management of NEPED. Over the first 3 years of the project, the PSC met only met twice (i.e. on February 24, 1995 and May 17, 1995). Since 1998 the PSC has met more frequently and taken a more active role in project management. They have met on November 19, 1998, February 18, 1999 and June 28, 1999.

Graduated Success Markers

6 Number of strategic contacts
6 Number of useful suggestions they made to us
7 Number of hoped for responses to requests we made

Organizational Practice 4. Re-designing current products and services

Best Examples

Nursery Program

The nursery component was not incorporated in the original project document. Later, when the field implementation took off in February'95, the POU came to realize that not all farmers were capable of arranging enough planting materials to meet their needs in the test plots.

Hence, the need to create one nursery for each District was recognized. Five nurseries out of the total seven district nurseries have done well and supplied planting materials to the farmers to supplement their requirements.

Subsequently, when the WID program was incorporated into the project activity, it was resolved that whenever groups of women are willing and capable, assistance to establish nurseries would be provided at Rs.30,000/- per nursery. NEPED anticipated this need and today, at least 80 private nurseries have emerged throughout the state.

Baseline Survey into a Statistical Survey

The initial requirement of conducting a baseline survey was suspended and attention was diverted towards the compilation of a statistical survey. Data was collected on biomass, soil types, tree species and fallow management. A sample survey by an external consultant was also conducted.

Core Group Computer training

The concept of the core group was to expand the concept of the team work of the POU / NEPED into a larger horizon and incorporate it into the existing government set up to improve the work culture, governance and enhance the efficiency of the state government staff. This will have a major impact on the performance of the Government of Nagaland in the years to come.

Graduated Success Markers

1	Number of changes (tweaks) made to existing products, services or operating environments
3	Number of significant upgrades or enhancements
2	Number of new products or services reflecting an advanced strategy

Organizational Practice 5. Checking up on those already served to add value

Best Examples

Coordination of "Year of Tree Planting in Nagaland" 1999

The Government of Nagaland had declared 1999 as the "Year of Tree Planting". Accordingly, the Tree Planting Committee was set up comprising the Administrative Heads and Heads of the departments who monitored the implementation of the programme at the district levels and reported directly to the Chief Minister. They issued guidelines to all the Deputy Commissioners.

Training programmes for the officers and staff were arranged in which technical guidance and material were given by the officers/staff of the Forest department and the POU (NEPED).

1. The Rural Development department instructed all DCs regarding utilization of JRY funds by the VDBs, for tree plantation.
2. The Forest department distributed the available planting materials free of cost to the people.
3. The Agriculture, Soil and Water Conservation and Wasteland Development departments and other departments having watershed development projects were to re-orient their programmes and concentrate on tree planting during 1999 planting season.
4. The line departments also adopted one unit each of the Security Forces (Police/Army/Assam Rifles) for planting of trees within the areas under the units.
5. The State Department of Evaluation is to evaluate and report the progress and achievement of the programme.

Assisted in the Computerization of State Budget

POU Officers assisted the State Finance Department in compiling and computerizing the State Annual Budget. Further, they were also entrusted by the Election Commission with work pertaining to revision of the electoral rolls.

Workshops with local experts

A participatory workshop of POU/local experts was conducted on 22nd-23rd Feb 1999 with the purpose of assessing the impact of the local experts in the project and also to clarify doubts/ problems recorded by the POU in the field.

As elaborated in the detailed report of the workshop, it was clearly established that the concept of having this "human data base of indigenous knowledge" has been more than justified. Several recommendations from them were field-tested and almost all proved successful. The local experts also provide a vital link between the POU and the villages.

Graduated Success Markers

32	Number of boundary partners for whom additional services were provided
175	Number of incidents where feedback was shared and discussed in team[2]
29	Number of partners who reported significant changes in what they do

Organizational Practice 6. Sharing your best wisdom with the world

Best Examples

Experience with ICRAF on Indigenous Fallow Management

As part of its activities under the global Alternative to Slash-and-Burn (ASB) project, the ICRAF S.E. Asia program hosted a workshop on ' *Indigenous Strategies for Intensification of Shifting Cultivation in Southeast Asia'* in Bogor, Indonesia on June 23rd - 27th , 1997. Dr. Supong Keitzar (SARS) and Amemba Yaden (POU) presented a paper on Naga use of *Alnus nepalensis* as an improved fallow species.

The outcome of the workshop was the birth of regional interest in Indigenous Fallow Management (IFM). A network of five nations namely - Philippines, Vietnam, P.R. China, India (Nagaland) and P.D.R. Lao was formed.

The main objective and activities of the collaboration are network facilitation, information sharing, links with other networks, capacity building, research/extrapolation on specific systems, and extension. A combined post-workshop study tour for IFM network members, led by Malcolm Cairns, the Co-ordinator of the network, visited the Indonesian islands of East Timor and Sumatra.

In accordance with the objective and activities agreed in the network meeting, the Nagamese had already paid a cross-country visit to Yunnan, China in 1998 and signed a draft memorandum with the Centre for Resource, Environment and Development, Chinese Academy of Sciences/Kunming, China for future collaborative research works in the fields.

Exchange with peer group - NEPED and LEAD India

The Leadership for Environment and Development (LEAD) Program is an international program sponsored by the Rockefeller Foundation. It comprises 13 member programs spread over 50 countries worldwide. The 6th Cohort of LEAD India visited Nagaland in December 1998 to conduct a case study on "Decentralized system of planning and development from the standpoint of empowerment of communities". This visit was coordinated by the POU and facilitated by the Chairman of PSC, NEPED. Following are excerpts from their report:

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[2]This number may be an underestimate. It reflects the fact that the POU met weekly from most of the period of the project and in many of those meetings was sharing information about the different test plots and issues which had come up. It was the general consensus of the POU members at the workshop that issues were discussed at virtually every meeting which fits this category.

- The government lays great store by the impact generated by the NEPED project.
- We feel that it would be a good idea to build upon the initial achievements of the NEPED project. As with most mass replication projects, there is a danger that we may believe as the whole truth, our own surmise that there is such a homogenous entity as "The Naga Farmer". Experience shows that even in tribal villages, there is differentiation among farmers. Some are far poorer than the rest. The needs of these and other categories of farmers need to be identified and considered separately in the search for solutions tailored to their needs.
- Participatory solution development along with these farmers may reinforce the point that the NEPED approach is truly the best and only way to solve the problems created by the pressure on land and the "jhum" cultivation practice.
- The current practice of agriculture is unsustainable owing to the traditional *Jhum* cycle mode of operation. As was found that some very dynamic initiatives [e.g., NEPED] has been under action to reverse the detrimental effects of Jhum however, more needs to be done on various fronts including efforts on proper water harvesting etc.

Detailed report is available on-line at www.leadindia.org (case studies/ Nagaland)

Media Reports and NEPED

Over the last 4 years, there have been several write ups in the print media about NEPED; in local Naga daily's, national papers and in the Canadian Globe and Mail by Mr. John Stackhouse. Several periodicals (Eco-waves & IDRC Reports) have also covered the impact of NEPED. Exhibitions in Delhi and Nagaland of the photo-documentation done by NEPED are highlighted.

On the audio-visual media, several lectures were delivered by POU members on State TV (Door Darshan Kendra, Kohima). NEPED also figured on the national TV network in a full-length documentary film that featured its activities (May 1999).

Most reviews spoke of NEPED in glowing terms, highlighting its unique grassroots level approach, its "see and learn" *modus operandi* and pioneering work in documentation of traditional knowledge and dictum of "putting the people first".

International Workshop: Technical Change in Agriculture and Deforestation

A paper on NEPED was presented at an international workshop organized by CIFOR that was held in Costa Rica. The workshop provided the opportunity for 2 POU team members to build linkages with researchers from institutions such as: Center for International Forestry Research (CIFOR), International Center for Research in Agro-Forestry (ICRAF), Centro Internacional de Agricultura Tropical (CIAT) and Centro Agronomico Tropical de Investigacion y Ensenanza (CATIE).

Graduated Success Markers

17 Number of events/activities where best practices were shared with peers in other organizations

4 Establishing new long term linkages outside the project

18 Number of times our work is quoted or used in other publications, media,or presentations

Organizational Practice 7. Experimenting to remain innovative

Best Examples

Delivery tools

Over the course of NEPED, the project has innovated to improve delivery and performance. Initially, all test plots were required to undertake land shaping. However, with field experience it became apparent there was considerable resistance among farmers because of heavy labour requirements. In addition, in regions with shallow slopes or flat land, land shaping was not necessary. Accordingly, project payments for test plots were adjusted and farmers were allowed to utilize the more acceptable indigenous soil erosion control measures. In flat areas, increased tree plantation was allowed to substitute for land shaping.

It became apparent that test plots were not well suited to the needs and socio-economic conditions of women so emphasis was, instead, placed on encouraging women to establish tree nurseries. Empowerment training for women was adopted by NEPED as a way to encourage women to take an active role in agro-forestry. With nurseries, this was expanded to include on-site technical training, with follow up visits by the POU to improve performance.

Farmer training initially was limited to farmers who would own test plots. However, as NEPED progressed it became apparent that village level training should be expanded because other farmers were interested in learning the concepts. In addition, because of the traditional division of field duties (e.g., women normally do the weeding), it was necessary to include women in the training so they learned to identify valuable species and avoid weeding them out in their field work.

Farmers often chose to plant trees much more densely in test plots than the POU initially advised, based on general silviculture practices. However, it became recognized that farmers had several good reasons for adopting this practice: denser plantation led to straighter trees; the canopy closed soon, smothering weeds and saving their scarce labour; the plantations could be thinned after 5-7 years, yielding cash flow from the straight poles which had a ready market.

The need to incorporate a more complex system of agro-forestry than just food crops and timber was recognized. Accordingly, in 1999 NEPED began establishing special fallow management projects in existing test plots.

Computer training for the POU

The Chairman of the PSC for NEPED, Mr. A.M. Gokhale, felt the need for training the project officers in the use of the computer in basic data collection and entry of accounts and tour notes and open up a window to the world. This was done through one of the senior POU members posted at Delhi, Mr. Simon T. Hangsing, who was already computer literate before the start of the NEPED project. All the POU members were then sent to New Delhi for two weeks practical (hands-on) training in 1996. This helped the POU members in the days to come in keeping records and data collected from fields visits. Some POU members went beyond this limit and are now involved in designing desktop publications for the Government and briefing papers of the projects. Some POU members were in charge of training the officers of the Core Group, which is an off-shoot of the NEPED project.

Species trials

In 1995, when the NEPED project started, the test plot selection was not only multi-locational but also trial plantations of certain tree species were tried in non-traditional areas. (It is recorded that some 38 different varieties of tree species have been planted in the test plots).

Some species tried included :

- *Cedrella* and *Spondias* seeds from Kohima to other districts.
- Distributions of 260,000 saplings of Agar (*Aquilaria agalocha*) an economic and valuable tree to all the districts to be tried in selected villages.
- 2,000 nos of *Citrus hatkora* were procured from Mizoram and distributed to TPs for field trials
- *Aleurites spp.* (Tung-oil tree)
- *Sapium baccatum*
- *Canarium resineforum*
- *Acrocarpus fraxinifolious* etc of native species but tried in non-traditional areas of the state
- Some exotic species such as *Paulownia* and *Acacia mangium* were also field-tested.

Graduated Success Markers

13	Number of possible new areas that were discussed with the team
12	Number of new ventures into an area without previous experience
4	Number of experimental areas that proved successful and were repeated or institutionalized

Weaknesses & Gaps

The primary weakness noted in the review of the POU practices, is documentation (mentioned by the participants in 5 of 7 practices - 1,3,4,5,6). The workshop gave everyone a new appreciation of the importance of documentation and reporting and reinforced earlier pressures put on the project to strengthen its reporting and documentation. This report is a reflection of the effort to move positively in this direction. The other comment on Practice 2 (Seeking Feedback From Key Informants) was that in the early stages, the project was too insular and did not seek outside views enough. This changed over the course of the project as reflected in the numbers on Practice 2. The final comment, on Practice 7 (Experimenting to Remain Innovative) was that the project was slow to take up work with NTFP, non-timber forest products, and could perhaps have been faster to explore options in this area.

Overall Conclusions

In a discussion following the end of the data collection on organizational practices, the following points were noted as important by the participants:

- The project has had a significant impact on the Government of Nagaland as demonstrated by its involvement in a number of support activities, such as computerization of the State budget, and support in the establishment of a Core Group modeled on the project team approach. These activities and requests demonstrate the increased capacity and skill level of the project team members;
- The realization of the importance of fallow management when viewed from the perspective of all the different ways it has had an effect on the project cannot be discounted and the ability of the team to integrate this work reflects an increasing agility in project management;
- The team also realized by situating its work in a framework, that a great deal has been accomplished in the project;
- Further, the workshop has been an important step to systematizing the documentation;
- The team also reflected that there has been a much higher level of confidence to participate by members of the POU team than was evidenced in the early years of the project; and
- The POU members also noted that the arrival of a new Director in 1998 was for them a significant up-turn in project activities; many of the scores noted in the review were attained after his arrival.

Appendix I
Outcome Challenge #1:
Results

PM 1: Trees are planted in Test Plots

Over 7 million trees were planted in 1808 test plots under the project

Saplings Planted by District/Sub-Division

District/Sub-Division	Number of Saplings Planted
Kohima	1,202,414
Longleng	125,859
Mokokchung	647,800
Mon	424,805
Phek	1,004,050
Pughoboto	145,000
Tseminyu	197,900
Tuensang	920,000
Wokha	996,618
Zunheboto	1,373,944
Dimapur	
Kiphire	
TOTAL	**7,038,390**

Top Ten Species Planted

Type of Specie	Number of Species
Gmelia arborea	2,544,049
Alnus nepelensis	947,307
Tectona grandis	642,379
Melia composita	571,046
Terminalia myrocarpa	361,994
Cedrella spp.	289,990
Spondius axilaris	274,477
Auilaria agollocha	204,449
Duabanga grandiflora	114,149
Local species	107,764

PM 2: Improved soil conservation measures in test plots

Most farmers (about 90 percent) used traditional erosion control methods prior to test plots being established in their villages. After test plots were established in the villages, small increases occurred in the NEPED style of trench land shaping and about one-third of the farmers indicated they would use this style of trench land shaping in the future. Villagers indicated a reduced intention to use traditional erosion control methods in the future, in favour of the NEPED style of trench erosion control.

PM 3: Women farmers participate in NEPED

93 Women Test Plots and 80 Women Nurseries were established between 1996 and 1999.

Comments:

- Initially, no specific gender component was included in NEPED. Over the course of NEPED, roles for women were developed to be better suited for their needs. Increasingly, women's groups came forward and requested participation.

- Beginning in 1996 there was a re-allocation of project activities to include programs specifically targeted at women. Special test plots were allocated to women and a gender coordinator (Ms Chozule Kikhi) incorporated gender into the POU.
- In July 1998, the decision was taken to focus the gender component of NEPED on encouraging women to establish tree nurseries. Women reported that tree nurseries were better suited to their situation because: (1) they could be located on rented land; (2) the time period for income generation was much shorter; and (3) the work required was more suited to their labour availability. There is considerable potential for sustainability and replication, leading to the establishment of a local tree nursery sector in Nagaland. This process is already well underway.

PM 4: Nurseries were developed

- Central nurseries in all district headquarters were initially developed in order to meet the growing demand for saplings.
- NEPED then shifted to more sustainable approaches, including having women own and manage nurseries since there is short-term utilization of land and women can get direct economic benefit by selling the saplings. Eighty women nurseries have been developed throughout Nagaland, as well as other nurseries.

Nurseries by District

District	Achievement	Comment
Kohima	N/A	Experimental propagation of indigenous tree species
Mokokchung	500,000	Distributed saplings widely for test plots and replication
Tuensang	130,000	Used for training and awareness about nurseries
Zunheboto	25,000	Technical problems
Phek	N/A	Saplings collected individually by villagers. No data available.
Mon	650,000	No data
Wokha	140,000	Distributed to test plots

PM 5: Mass replication takes place

- Survey data shows that 68 percent of the farmers who received test plots subsequently planted trees in another jhum field.
- Among those who did not receive a test plot, twice as many (86% compared to 43%) planted trees in a jhum field after the NEPED test plot was established in their village than had planted trees before. Virtually all villagers indicated that they were likely to plant trees in jhum fields in the future.
- The average area of trees planted in each village was estimated to be 69 hectares. In the statistical sample, two villages had planted very large areas: one village had planted 565 hectares and another 372 hectares. If these two observations are removed from the sample, the average area planted since NEPED began is 38 hectares per village. Using this more conservative estimate of area planted, the total area of replication in the seven districts of Nagaland would be approximately 33,000 hectares.
- The village elders estimated that village farmers had planted an average of 149,000 trees per village.

PM 6: Increased utilization of well-adapted local varieties is seen

- Species planted were highly varied. Over 70 percent of test plots and 65 percent of replicate plots contained "other" species, outside of the top ten. With the exception of Teak, all species can be considered indigenous to Nagaland.
- In a sample survey, more than half the test plots contained Gomari, one-third contained Alder and approximately one-quarter contained Teak.
- Replicate plots contained a higher percentage of Gomari, Teak, Hollock and Hill toona trees (58 percent of all trees) than did test plots (these species generally have a strong cash market).
- Test plots contained a more varied number of species than did replicate plots - approximately 35 percent of trees on test plots were not in the top nine listed species, while approximately 20 percent of trees on replicate plots were not in the top nine listed species.
- A database was developed which shows the tree species ranked from 1 to 40.

Top Ten Species

Specie	Number Planted	Rank
Gmilina arborea	2,544,049	1
Alnus nepalensis	947,307	2
Tectonia grandis	642,379	3
Melia composita	571,046	4
Terminalia myriocarpa	361,994	5
Cedrella spp.	289,990	6
Spondias axilaris	274,477	7
Aquilaria agallocha	204,449	8
Duabanga grandiflora	114,149	9
Uid Local species	107,764	10

- Farmers have become increasingly aware of the economic value of local species and have planted them (e.g. in Zunheboto District over 473,000 *Almus nepalensis* and 62,500 *Cedrela spp.* were planted in the last three years).
- Due to the intervention of NEPED, villagers became more aware of the utility of local varieties of tree species for timber use, such as, for example, *Almus nepalensis* (ranked second), *Melia composita* (ranked fourth), *Cedrela spp.* (ranked fifth) and *Spondias axillaries* (ranked seventh).

PM 7: Poly-culture is promoted over mono-culture

- On average, five different species were planted in each test plot and four species in replicate plots. Farmers who had test plots were encouraged by the POU staff to allow natural re-growth and weed selectively to save valuable species. The data confirm that farmers have been doing this.
- Physical verification reports from all districts indicate that virtually all farmers have planted three species or more. In Kohima and Dimapur District (excluding the plains sector), the most favoured combination for plantations included: *Gmelian sp., Cedrella sp., Melia sp.,* and *Terminalia sp.*

PM 8: Increased use of alder and other nitrogen-fixing species

- Data on species planted show that nitrogen-fixing varieties were planted across Nagaland.
- Alder and Albezia were not commonly planted prior to NEPED; previously the villagers used to retain the re-generated plants. Now, villagers re-plant wild saplings and have started raising Alder and Albezia saplings, along with other species, in the nurseries.
- Alder plantation is most pronounced in Zunheboto District and, to a lesser extent, Tuensang due to the predominantly high altitudes.

PM 9: Increased demand for, and availability of, planting materials

- There is an increased demand for saplings due to test plots and replication. The government's declaration of 1999 as the "Year of Tree Plantation" enhanced demand for planting materials. Under this program there was a demand of 20 lakhs of saplings. From this demand, a little over 13 lakhs could be met, both in terms of poly-bags and stumps.
- The increased demand for planting materials caused seedlings to be brought from other districts as well as from outside of Nagaland State, and has created a ready market for saplings from local nurseries thus establishing a tree nursery sector. For example:
  - In 1998, there were only two nurseries in Phesama Village - one supported by NEPED and the other privately owned. By 1999, there were 24 replicate nurseries established by people using their own resources.
  - In Mokokchung District, the POU and DPT members encouraged the interested farmers to establish private nurseries in all the ranges. At present, many private as well as some societies have established their own nurseries.

PM 10: Enhanced preservation of biodiversity

- Prior to NEPED, people were planting only Teak and Gamari, including those in higher altitudes, as these species were known for their timber value. However, during farmers' training and field visits, farmers learned that various species should be planted depending on altitude variations and uses. Hence people started planting mixed species in jhum fields.
- The Chakhesang Public Organization passed a resolution covering all villages in Phek District in 1999, whereby each village would establish strict controls on extraction of flora and fauna from forests and all villages were required to establish a local biodiversity preserve in village forestland.

PM 11: Empowerment of women is increased

- NEPED is the first organization to address gender issues in Nagaland. So far, 213 women from 123 villages have participated in women's empowerment training.
- A tour to Karnataka State for women from all districts of Nagaland, organized by NEPED, was acknowledged by the Naga Mothers Association.
- The presentation of Mrs. Neidonuo Angami, President, Naga Mothers Association, to the Ministry of Environment and Forest, highlighted the role of NEPED in women's empowerment and in recognizing and promoting the role of women in agriculture.
- Nine women from Phek District attended a one week training on small-scale tea plantations in Mokokchung District.

PM 12: No expansion of tree plantation into natural forests

- When farmers plant trees in jhum fields, the maturation period for the trees is at least 10-20 years. Realizing this, NEPED introduced the idea of planting fallow crops such as ginger, cardamom and other shade-loving plants, so that farmers could get additional income from fallow fields.
- In rural areas, most tree plantation is done by small farmers in jhum land.
- Only three of the 28 villages in the survey reported that primary forest had been jhummed since the NEPED project began. One was a large area of over 150 hectares; the other two had jhummed only small tracts. Averaged across the sample of 28 villages, this amounted to less than 6 hectares per village.
- At lower altitudes, (e.g. in areas bordering Assam), some large-scale tree plantation has occurred, often on previously forested land. This activity, mainly by those people with high incomes and not jhum farmers, will require continued monitoring.

PM 13: Sustainable economic development

- Establishment of local based nursery sectors. Due to the increased demand for tree saplings, many villagers are starting nurseries. For example, in Viswema there are as many as 22 privately owned nurseries who have replicated the NEPED nursery.
- Tree farming has established itself as a viable agricultural activity in Nagaland.
- Some progress towards establishing more complex agro-forestry systems, including fallow cash crops, but additional adoption will be necessary.

- Major issues for the future:
  - Timber from the test plots will be harvested, beginning approximately in 2010, and will be subject to market conditions and opportunities at that time.
  - Farm level benefits will be determined by the availability of equitable marketing arrangements and local level value-added opportunities.

PM 14: Farmers motivate fellow farmers

- During farmers' training in the district, farmers shared their best practices with other participants. When the POU members travelled from one village to another, innovative farmers accompanied them to exchange new findings and experiences.
- Many people who replicated the test plots had never planted trees before the NEPED test plot was established in their village. Almost all those who replicated reported that someone else in their household had planted trees after the NEPED test plot was established in their village, and that they or someone in their household intends to plant trees in jhum fields in the next year.
- Evaluations found no significant difference between test and replicate plots, implying that farmer-led testing and dissemination produced outcomes at least as good as those where project officers provided direct advice and close supervision. This implies that the village farmers watched and learned from the experiences of the test plot operators.
- Examples of farmer-led motivation are abundant. For example:
  - In Nangting Village, the entire village community participated in the plantation works under the NEPEP project during 1995. The project allocated 6 hectares per village, but actual implementation in this particular village covers about 60 hectares.
  - The NEPED project was implemented in Chuoha Chingnyu Village during 1996. In 1998, the Village Community passed a resolution to start a large-scale plantation in order to bring 7 sq km of village land under permanent forest cover by the year 2000.

PM 15: Khonoma system widely replicated

- The Khonoma system is highly productive but requires an extremely heavy initial labour investment in terms of building the terraces. In Khonoma, the extensive terraces are the result of many years of development.
- In Porba Village, Phek District, a test plot farmer has replicated the Khonoma system of jhum farming. He has contstructed permanent contour bunds using stones and boulders in order to check soil erosion, much beyond the NEPED specifications. Alder and other tree species have been planted with vegetable crops. This has resulted in a jhum cultivation system that is sustainable.

Appendix II
Outcome Challenge #2: Results

PM 1: Increased awareness of rich biodiversity of the region

- In Viswema Village:
  - 103 paddy varieties have been cultivated
  - 30 millet varieties were known; however, only 4 or 5 now cultivated
  - 133 tree varieties listed
  - 30 varieties of chow chow; large variety of legumes

- A detailed study is available with the POU
- Vizonyu and Koza - reconnaissance of biodiversity at Khezhakenoma Village (Report awaited)
- Throughout Nagaland, villagers are beginning to take steps to preserve biodiversity. For example, local restrictions on harvesting plants and animals in community forests are being established and enforced, often due to the encouragement of community groups such as student unions.

PM 2: NEPED approach results in activities

- Applications were received from students' communities such the Tesuphenyu Village Students' Union, the Tseminyu Village Students' Union (Kohima District) and the Kichilimi Students' Union (Zunheboto District). These applications requested for tree saplings for planting in the village areas. Some saplings were provided in response to their request.
- In Mokokchung District, both POU members and DPT members held a meeting under the chairmanship of the Deputy Commissioner and decided to distribtute 100,000 saplings in each block. DPT members were assigned to various blocks for procurement of saplings from the private nursery owners. The respective DPT members have fixed a date for plantation day and successfully implemented the scheme.
- Declaration of the year 1999 as the "Year of Tree Plantation" is the direct outcome of the conviction of the NEPED approach of sustainable development of natural resources through people's involvement.
- The declaration of the "Year of Tree Plantation" produced a high demand for tree saplings and stumps.

- With funding from NEPED, the plantation of trees was also taken up by the following government establishments:
  (1) Nagaland Secretariat Complex — Rs. 49,000/-involved
  (2) 1st NAP (timber and avenue trees) — Rs. 72,000/-involved
  (3) Army Jakhama (grafted fruit trees) — Rs. 17,300/-involved
- The planting materials were largely supplied by the local nurseries including those women nurseries financially assisted by NEPED.

PM 3: Tree planting is incorporated as an annual event

- Many villages in Nagaland have resolved to plant trees every year in their jhum fields and in roadside plantations. This shows that people have become environmentally aware and are thinking about their economic development.
- Some villages have decided to encourage tree plantation every year as an annual event. For example:
  - The Semo clan of Khonoma Village decided to plant trees by every household of the clan on the 20th May of every year.
  - To encourage the planting of trees and the protection of young plants, the Kohima Village Council has banned the letting loose of domestic animals (cattle) all though the year and is in effect from the year 1999.
- The Baptist Church and various youth organizations adopted resolutions to plant trees.

PM 4: Local institutions succeed in getting funds for plantation

- 1999 was declared the "Year of Tree Plantation" by the Government of Nagaland. The State-wide plantations were supervised by the POU and the work executed through grassroots institutions and NGOs.
- Villages report receipt of funds and/or seedlings for tree plantation from government departments and other organizations such as: the Wastelands Development Department, the Soil Conservation Department, the Agriculture Department, the Forest Department, the Rural Development Department as well as NGOs and other organizations.

PM 5: Environmental awareness leads to revival of indigenous knowledge

- A participatory workshop with the local experts (NEPED's "human data bank") and the POU was held in February 1999. It was amply established that certain customs and usages that the Nagamese had traditionally followed, and which were now being forgotten, had a scientific basis and reasoning behind it. A detailed report on the workshop is available.

- The initial information about the NEPED technology package was quite basic because the primary approach utilized was farmer-led testing and dissemination of agro-forestry. Technical material was limited to basic information about tree spacing, species selection, and land shaping - all transmitted verbally to farmers in field training exercises.
- In July 1998, it was determined that a more formalized approach was necessary for three reasons:
    1. The growing interest in tree plantation had outstripped the capacity of the POU to provide on-site training;
    2. Experience with over three years of farmer-led experimentation had produced important knowledge about the application of agro-forestry in local conditions; and
    3. Indigenous knowledge had been accumulated by the POU but required formal recording.
- The information approaches selected were:
    1. Establish a briefing paper series to quickly release key information; and
    2. Produce a resource kit describing best practices for improving traditional agriculture in Nagaland.

PM 6: Experience is shared with external agencies

- No data available at this time.

PM 7: Increased participatory approach to local decision-making

- No data available at this time.

PM 8: Local institutions play a key role in decision-making

- Semo Clan of Khonoma Village decided to plant trees on the 20th May every year.
- Kikhi Clan of Viswema Village decided that every household will plant 100 tree saplings in the year 1999.
- Tseminyu Students' Union planted tree saplings in jhum fields with financial aid from NEPED.
- Zhadima women's community established a test plot in their village.
- Tsiemikhuma Baptist Church established a test plot in the village.
- Patkai Christian College established a test plot on their own land.

PM 9: Local institutions act independently

- No data available at this time.

PM 10: They network among themselves

- No data available at this time.

PM 11: Participate in District/State level workshops/conferences

- A two-day seminar on various church activities was held at Angami Baptist Council of Churches, Mission Centre, Kohima on the 6th and 7th February, 1999. Two Baptist youth leaders each from Angami villages were invited for this seminar. There were 92 participants from 40 villages who took part in this seminar.
  - POU members and Subrata Rana (IIRR Philippines) took part in the last session of the seminar and delivered keynote addresses on environmental conservation and methods of tree farming by direct sowing.
- NEPED has stimulated many groups in Nagaland to discuss tree plantation and the environment. In many cases, the POU officers act as moderators and/or resource persons. Examples of activities are:
  - January 14th 1999, Viswema Youth Society Viswema Village, Kohima: talks on Tree Nursery Management Techniques and Plantation of Valuable Trees were delivered; 900 people attended.
  - Zhekiye Village, Zunheboto: Students' Union of 18 villages were addressed regarding Nursery Management, Tree Culture in Jhum Fields, and the Role of the VDB in the NEPED Concept.
  - February 13-14th 1999, Chetheba, Phek: Workshop on Local Resource Inventories, Tree Plantation, and Cash Agro-Forestry Crops; 30 participants from 9 villages (including 8 women) attended.
  - January 15th 1999, Satakha, Phek: Student Union Members on role of students in village development; 1500 participants (students plus village leaders).
  - January 22nd 1999, Punglwa A and B village, Kohima: Mass motivation program on the importance of tree plantation and environmental conservation; 40 village elders and women leaders.
  - Throughout the 1998 Fiscal Year, 14 workshops were held in which the POU team members made formal presentations and interacted with 3,400 farmers and students about the role of agro-forestry in jhum cultivation as well as general environmental protection needs.

PM 12: Local institutions succeed in obtaining financial support from financial institutions

- No data available at this time.

PM 13: Local institutions initiate their own programs

- No data available at this time.

PM 14: Local institutions are self-sustaining

- No data available at this time.

PM 15: Local institutions convince government to initiate schemes elsewhere

- No data available at this time.

Appendix III
Outcome Challenge #3: Results

PM 1: VCs/VDBs support NEPED

- According to the design of the project, VCs and VDBs have a vital role in successful implementation. They are to select, facilitate and monitor the performance of the test plot owners. They are also required to approve the release of payment.
- They discuss and decide which plots in the village are to be brought under jhum cultivation in a particular year. They are involved in development activities and dissemination of information.
- Only one village failed to implement the project.
- No verification of TPs was taken up and payments released unless a clear request was received from VCs/VDBs. Funds were deposited to the respective bank accounts, jointly operated by the VCs/ VDBs and the Chairman of the DPT/SDPT.

PM2: VCs/VDBs select the appropriate test plot owners

- In a few cases, the right test plot owners were not selected. This was maybe due to land ownership problems, shortage of land, or traditional systems such as the Chieftain system where the village chief owns all the land.
- Most VCs/VDBs selected jhum plots owned by committed, experienced and enthusiastic farmers. A limited number of cases of selection of inappropriate test plots and indifferent farmers, however, could also be noticed.
- The establishment of test plots in some villages (e.g. Rusoma, Chedema, Tsiesema bawe, Poilwa, Old Peren, New Tesen etc.) were deferred to the next year due to poor selection of farmers and sites. However, intervention by the POU was effective in re-allocating test plots to better farmers.
- In many villages, particular societies, clans or communities have been selected to establish test plots. It was observed that the test plots owned by individuals have done better than those that were managed by communities, societies, clans etc.
- Survey data indicates that those people who were allocated test plots were rated, on average, as wealthy. However, because these were usually influential people in the local community, better diffusion to other villages occurred.

PM 3: They provide local resources, knowledge and actively participate

- The POU members gathered or learned many new things that they never knew before. They documented invaluable information on indigenous tree species and methods of planting them as well as traditional knowledge and customs etc.
- Local resources such as land, labour, local knowledge and partictipation were enthusiastically provided in the implementation of plantation works of trees under the NEPED program.
- Local resources were mobilized in terms of labour inputs and planting materials. There was active participation from the test plot owners.
- The indigenous species that are planted in the test plots are contributed from local resources. Methods for performing different stages of activities like seed collection, time of sowing, and treatment of seeds are all traditional depending on the suitability of the area. The success of the project is due to the active participation of farmers.
- The members of the VCs/VDBs are generally village elders with knowledge, experience, and authoritative hold on villagers. They are decisive and well versed in customary laws. They encourage the villagers for replication of the NEPED concept. For example, in 1997 the Nerhema Village Council resolved to utilize the EAS (Employment Assurance Scheme) funds, sanctioned by the Government, in order to allow each household to plant a tree.
- Local farmers are well versed with many of the local conditions of their village including: the tree varieties which can thrive in the soil condition of the village, plant propagation methods of suitable local varieties of tree species, and food crop - tree compatibility.
- The contributions of these village institutions for the successful implementation of the NEPED project are remarkable. The POU members keep close contact with them at the times they went for selection, rectification and monitoring of the project in a village. At these times, the VCs/VDBs were informed ahead of the visit in order to have interactions with them. Since 1996, enthusiasm shown by villages to implement the NEPED project itself shows the extent to which the VCs/VDBs are convinced about the reliability of the project. Replications are also evidence of their acceptance of this concept.
- There have been instances of leadership in villages planting trees in large scale in their own jhum fields. A few examples include:
  - Mr. Ato of Chumukedi Village planted 10,000 trees in his jhum field
  - The Village Council Chairman of Tshhma Village planted trees in approximately 6 hectares of his own jhum fields
  - The Pastor of Urra Village has planted 30,000 trees in a large plot of his own jhum fields
- Training is conducted at different levels. With frequent training and interaction with the POU and DPT members in the district, the trainees are well versed with the NEPED concept.

PM 5: VCs/VDBs help monitor NEPED activities

- The VCs/VDBs have been made responsible to oversee the implementation of the NEPED project in the villages. They are required to report to the DPT/SDPT about the work carried out in the test plots before the release of the payment. They have also been made answerable for the failure of the project in the village or if funds are misappropriated. (Also refer to the NEPED Booklet-1).
- Some villages have set very active roles. For example, the Ghokimi Village Council, under the Pughoboto Sub-Division, has passed a resolution to monitor and provide support to the NEPED project until the trees have matured. If the test plot fails, the Village Council will impose a penalty on the landowners and ask them to pay back the amount spent by the project to the Village Council.

PM 6: VCs/VDBs act as village level dissemination agents of NEPED

- Almost half of the villages in the sample (12 out of 28) have passed resolutions to plant trees.

PM 7: VCs/VDBs are more environmentally conscious

- People are more environmentally conscious in both test plots and other activities.
- Naturally re-generated saplings in jhum fields are now preserved
- Several village councils have passed laws concerning the control of fire and cattle.
- In some villages, such as Viswema for example, the Chuchungyimla, Simomia and Kikhi clans have resolved to plant at least 1000-2000 trees saplings by each household.
- Seasonal hunting laws have been enforced in order to avoid the indiscriminate killing of animals.

PM 8: VCs/VDBs collaborate with local institutions

- For general development, the Village Councils and Village Development Boards are responsible for the welfare of the village. Other local institutions, however, such as the churches, youth groups etc., have independent decision-making in their development activities.

- Many local institutions have collaborated with the VCs/VDBs. For example,
  - The Village Councils of Tesophenyu Village (under Tseminyu) and Kichilimi Village (under Pughoboto) collaborated with their village Students' Union for plantation during the 1999 "Year of the Plantation" program.
  - The Lotha Hoho, churches, women's groups and youth were involved and collaborated with the POU in implementing the "Year of the Tree Plantation" program.

PM 9: VDB funds are provided for replication

- In many cases the VDB funds are not being invested in long-term tree plantation, but rather on schemes that give immediate returns. These include: rental house construction, village buses for revenue and mobility, installing a rice mill to reduce work drudgery, and horticulture. However, some villages have utilized their Employment Assurance Scheme (EAS) funds for tree plantation.
- Nine of the 28 villages sampled have used Village Development Board (VDB) funds for tree plantation. They reported a total of approximately Rs.300,000 allocated to tree plantation from VDB funds over the period covered by NEPED.
- In some cases, the use of funds for women has occurred. For example, the women's VDB group from Chumukedima Village has been utilizing its share (25%) of the annual grant-in-aid for tree plantation.

PM 10: VCs/VDBs involve women in more schemes in decision-making

- The Peducha Village test plot for women was granted to the women members without their request for a plot. It was established in 1995 and is one of the best test plots for several reasons: (1) they owned the land; (2) technical and funding support from the project was timely; and (3) women were going to own the entire plantation once the trees have matured.
- Some women's groups, NGOs and church groups possessing land also approached NEPED for a test plot. These often performed well. Examples are Zhadima, Jakhama, Ngwalwa, Ciepoketa.
- As per the RD model rules, it is mandatory to select at least 2 women members in the VDB. The women are granted 25% of the RD grant-in-aid allocation. Women are to prepare their own schemes from the fund allocated to them. Among some tribes, however, the Naga customary law does not permit women to partake in the village community meetings where decisions are made.
- There are 93 test plots and 80 nurseries under NEPED that are allocated to women.

- In 1998-99, the Nsunyu Village Council has allowed women to purchase a plot of land from their 25% share of the VDB fund in order to enable them to initiate their own development activities.
- In some villages, women are also allowed to be VDB Secretary or a member. One of the longest serving secretaries was a woman who served continuously for 14 years.
- Women were not allowed to own land in any of the villages included in the survey sample. However, women could own trees in almost one-third of the villages.
- Village elders reported that most of the women (90%) have been receiving their 25 percent share of the VDB funds, though only 11 percent have used these funds for planting trees.
- Field experience suggests that not all VDBs have allocated women their 25% share of the VDB funds.
- POU efforts have sometimes informed and mobilized women to be more active in local decision-making.

PM 11: There is transparency and accountability in development activities

- In areas where power is not shared with other people, there is a lack of transparency and accountability. However, when NEPED members intervened during field visits, training, empowerment training etc., transparency was improved.

PM 12: VCs/VDBs plan and implement development activities

- No data available at this time.

PM 13: They pass resolutions/laws related to sustainable development

- The Chakesang People's Organization (CPO), the apex tribal body governing the Chakesang tribe of Phek District have passed laws in their district banning the indiscriminate burning of jungles, wanton bio-prospecting and extraction of NTFP, hunting etc.
- They have also passed resolutions upholding the need to conserve bio-diversity and maintaining the ecological balance.
- Resolutions are being enforced, with substantial fines imposed for non-acceptable activities.

PM 14: Village funds are utilized for setting up marketing cooperatives

- No data available at this time

PM 15: Influence on state legislation, laws and development plans

- No data available at this time.

Appendix IV
Outcome Challenge #4: Results

PM 1: Cooperation, participation and effective team work between DPT/SDPT

- Cooperation and teamwork varied across the districts. For example:
  - In Mokikchung District the DPT is well organized, cooperating with the POU under the chair of the Deputy Commissioner. There were regular monthly meetings particularly for the NEPED project, that were normally held one day ahead of the District Planning Board (DPB).
  - In contrast, cooperation and participation of the DPT/SDPT in Wokha District was poor. Although there are 10 DPT members in the district, only 3 to 4 members took an interest in the functioning of NEPED.
  - The DPT of Kohima and the SDPTs of Peren and Dimapur comprise of representatives of development departments, with the administrative head of the Distict/Sub-Divions as Chairman. The DPT of Kohima District meets on the 9th of every month. SDPTs of Peren and Dimapur also meets once a month to discuss matters relating to the NEPED project.
  - The POU members attend such meetings for guiding the DPT and SDPTs in various matters relating to the training of test plot owners and village council members, verification of test plots, and mode of release of payments. The DPT/SDPT members visit the test plots jointly with the POU. Effective team work between the POU and DPT is best ensured through interactions in meetings and joint verifications of the test plots.
- Overall, despite some difficulties, utilization of the DPT/SDPT is necessary in Nagaland due to difficult travel and communication systems. Good team work is best assured when the DPT/SDPT are involved in the planning.

PM 2: DPT/SDPT meet training and verification responsibilities completely and on time

- Overall, experiences have varied across the districts. For example:
  - In Mokokchung District, the DPT training was conducted five times in the district. DPT members were responsible for the verification of the project sites after completion reports were received from the field staff and VC/VDB of the villages. Work was usually done on time.
  - In Wokha, DPT/SDPT training was conducted on time. Verification was completed but not on time.

- In Zunheboto District, training was conducted on time, except in the first year of the project. Verification responsibility is given to the DPT & SDPT but it has been often observed that the response is irregular, as all the members are not equally active.

- Since the villages for the NEPED project were selected according to phases, the DPT and SDPT are involved in imparting training to the test plot owners/VC/VDBs as follows:
  - As soon as the villages are selected, first training is held in the District/Sub-Division head quarters. The VCC and VDB representatives are called for orientation and awareness training. In this training the NEPED concept is discussed.
  - The DPT/SDPT members impart technical training to the field staff with the help of the POU members.
  - Technical training is also conducted in the field by DPT/SDPT members and POU members. In this training session, the test plot owners are given practical demonstrations on techniques of land shaping, sapling planting, sowing methods, and the staking, spacing and staggering method.
- The calendar for verification of test plots with the officers entrusted to verify them is chalked out by the DPT which helps verification of test plot activities to be on time.

PM 3: POU officers are released from departmental responsibilities to fully participate in NEPED activities

- Mr. Acharyya has committed to send Dr. Merle.

PM 4: Timely funds are provided to NEPED participants

- Except for the year 1997, funds coming from the donors were received and implemented in time throughout the project period. Local resources were also always available on time.
- Funds from the state government, however, were quite irregular.
- Following the declared policy, heads of line departments in Kohima District met in June 1999 and chalked out the program for effective implementation of the "Year of Tree Plantation". The objective was to motivate, encourage and assist the public for mass plantation extending down to the grass-roots level. The number of government-funded saplings planted in Kohima was 317, 640.

PM 5: Adequate funds are provided for district and field mobility and travel

- Funds for field mobility were not adequate for the District teams.
- Due to financial constraints of the Government of Nagaland, funds were not released on time. POU movements to the districts were adversely affected.
- The DPT and Field Staff participating in the NEPED project have been requesting travel allowances. But the project has not been able to provide any incentive to them. Only the fuel cost was reimbursed to the officers.
- The two-tier system complicated project implementation, as the POU travel fund was superior to DPT/SDPT/Field Team travel support.

PM 6: Capacity of DPT/SDPT is increased

- The capacity among most DPT members was increased.
- More specifically, members from the Agriculture, Wastelands Development and Forest Departments in the DPT/SDPT have become more active in their departments' work. For example:
    - the Kohima DPT is capable of imparting training on tree farming to villages without assistance from the POU;
    - Most DPTs/SDPTs surpervised the "Year of Tree Planting 1999" independently in their respective districts;
    - DPTs are familiar with the reporting/verification formats and use it themselves;
    - the DPT members have adapted well to the NEPED methodologies and are even using it in executing their present departmental works (e.g. PRA).

PM 7: State funds are provided for plantation at community level

- The programs of the Agriculture and Wastelands Development Departments have adopted the NEPED approach.
- The State declared 1999 as the "Year of Tree Planting". An amount of Rs.25 million has been spent by the State for this specific program.
- The government departments of Rural Development, Wasteland, Forest, Soil Conservation and Agriculture provided funds for the plantation schemes at the community level. For example, the Rural Development Department has made it mandatory for all VDBs to allocate a sum of Rs250/- per household for tree plantation.

PM 8: SARS collaborates with POU on research activities

- Management of trees after 2 years cropping in jhum fields through appropriate technology.
- Introduction of shade loving economic plants for fallow management systems after normal cropping season is over, which provides better returns in the test plots.
- Intensification of jhum fields by introduction of multipurpose tree species e.g. *Alnus nepalensis*
- Intensification of jhum by introduction of appropriate soil conservation measures e.g. laying of tree branches/logs along the slopes, contour planting of economically viable plants such as taro, job's tear, sesame, soybean, etc.

PM 9: POU is invited to help build government capacity

- The concept of the Core Group was to expand on the multi-disciplinary and cross-cutting approach of the POU in NEPED into a larger horizon and incorporate it into the existing government set-up to improve the work culture, governance and also to enhance the efficiency of the state government staff.
- A training school was set up in the old secretariat building to train the members of the Core Group consisting of three member teams from all the 57 departments in the state government. POU members were the resource persons to train the government staff. POU members and staff first gave an orientation course on the latest software and hardware. A total of 108 official and approximately 50 non-official staff have so far been trained at this centre since May 1998. Training still continues.

PM 10: POU multidisciplinary approach by government

- On 7th August, 1997, the Chief Secretary of Nagaland, Mr. A.M. Gokhale, who is also Chairman of the PSC NEPED, asked all heads of departments in Nagaland to nominate 3 mid-level officers from their respective departments to join a select cluster of officers to be called the Core Group. The Core Group had their first meeting under the auspices of the Resource Group comprising of 6 senior level officers, including the Chief Secretary and Team Leader of NEPED.
- There is a Training Centre with 6 computers, where Core Group members are taught essential skills on Operating Systems, Word Processing and Data Base Inputs and Management by members of the POU and NEPED.

PM 11: Government passes/enforces legislation to protect forest/crops

- The Nagaland Cattle Trespass Act, 1985 had been enacted in 1986 but could not be made enforceable pending notification in the State Gazette for 11 years. After the frenetic plantation activities that followed in the wake of NEPED, there was a public demand for protecting plantations from destruction by grazing cattle. This long pending law was finally notified on the 31st October, 1997 and is now being enforced.

PM 12: There is increase in activities and use of funds

- No data available at this time.

PM 13: Restrictions on sale of timber outside is lifted

- No data available at this time.

PM 14: Forest Department increases forest protection

- No data available at this time.

PM 15: Provision of transportation, storage and marketing infrastructure

- There is no separate directorate to oversee the development of agriculture marketing in the State. The weakness of the system is reflected in improper marketing practices, inadequacy of marketing infrastructure and absence of regulatory measures.
- Lack of transportation and communication facilities discourages marketing on a commercial scale.

Appendix V
Performance Brainstorming

To determine a count for each success marker in the seven POU practices, the group brainstormed for fifteen minutes. Each practice was identified with one or more markers to result in the total count. From these, three examples were selected for write-up as part of the main report. The examples that were selected for write-ups are highlighted in bold.

Practice 1:

- **Land shaping for local experience and villages**
- Germplasm transfer
- **Identification of indigenous species**
- When to fell timber - farmers
- Seed collection timing
- Avoiding seed propagation by timed slashing
- **Idea of fallow crop management in jhum fields**
- Acknowledge that farmers know more
- Thatch control by use of Cassava
- Use of common salt for the control of weed and paddy increase
- Viability testing on seeds
- Identification of other fire resistant species
- Defining criteria for test plots
- Inter cropping with coffee
- Identification of medicinal plants

Practice 2:

- From Eco Waves about sign boards
- From ``Peoples Group` about lack of PRA
- **Social impact (rich buying land and causing landlessness in the state)**
- Forest Department Official accusing private plantation as NEPED one
- **That training should be open to all members and not limited to NEPED TP only**
- **Villagers suggested that women should also be included in training (since they were involved in weeding and would take out the important species)**
- Introduction of horticulture trees
- Preserving "mother tree"
- Utilization of low lying areas for tree plantation
- Fallow management
- Use Hedgerow instead of bunding
- Feedback from Mizoram (appreciation)
- Import of planting materials from outside

Practice 3:

- ❑ Move to regular PSC meetings
- ❑ **Incorporation of the gender dimension in the project**
- ❑ Up-grading of infrastructure (vehicles and computers)
- ❑ Project Extension
- ❑ Land shaping on gradual or flat lands
- ❑ Introduction of participatory approach
- ❑ **Divesting POU members of official functions**
- ❑ **Keeping up with reporting**
- ❑ Additional one POU for gender
- ❑ **Meeting with Chief Minister**
- ❑ Field visits by CIDA/ ICEF
- ❑ Provision of Canadian funds for travel
- ❑ IDRC Evaluation Unit involvement

Practice 4:

- ❑ **Nursery Program**
- ❑ Land shaping redesigned
- ❑ **Baseline survey into a statistical survey**
- ❑ Shift from technical training to Environmental awareness
- ❑ **Computer training for core group**
- ❑ Linking with NGOs

Practice 5:

- ❑ **Workshops and Seminars (local experts/farmers/team etc.) - 14 workshops held for general public, 3400 farmers, 9 church groups, 2 NGOs and 3 student groups**
- ❑ Publications (briefing papers also in local dialects etc.)
- ❑ Number of farmers who are taking the NEPED ways like landshaping, reporting on new land species etc.
- ❑ **Co-ordinated the "Year of Tree Plantation"**
- ❑ **Assisted in the computerisation of state budget**
- ❑ Weekly POU meetings
- ❑ POU acts as facilitators for external visits
- ❑ Invited to speak to local institutions
- ❑ Local institutions pass resolutions - 6, About 20 groups, 2 NGOs in Tuensang

Practice 6:

- **POU exposure trip within the country/out of the country-** Vezo, Amenba,Vengota,Sancho, Raj, Subong,Chozule, Michael, Qhutovi,Ari, Ghukhui, Bendang, Zhuphay, Acharya, Kikon, Koza, Purakhu, Mar, Amemba (ICRAF), Vizo(ICRAF), Vengota (Masters), Raj & Sancho (LEAD), Supong(ICRAF), Ghukhui & Chozule (ICIMOD)
- **Media -** Ecoworks, Times of India, Hindustan Times, Telegraph, Warrior Monthly, LEAD website, Nagaland Post, GLOBE & MAIL, N.E.Sun magazine, Local dialect papers (1 published by Angami Baptist Church Council), Guardian, IDRC Reports, Radio talks, National TV, Interviews on State TV, Farm Radio Canada (CBC)
- **Exchange with peer group**
- **International Workshop**

Practice 7:

- Fallow management
- Tree nurseries - 1996 onwards
- Baseline survey
- **Experimenting with different information delivery tools:** films, briefing papers, resource book, large scale presentation and local expert workshop, GIS, photo documentation of plants
- Knowledge on Indigenous knowledge
- **Computers**
- **Species trials of agro-forestry crops in project test plots**

Appendix VI - Participants

Participants:	Designation/Position:	Dept./Organization:
Mr. Raj Verma	Deputy Secretary	Admin (NCS)
Mr. L. Nungshimar	Joint Director	Fishery
Mr. M.C. Acharyya	Joint Registrar	Co-operative
Mr. Z. Kikon	Joint Director	Agriculture
Mr. Amemba Yaden	Deputy Cons. Forest	Forest
Mr. Purakhu Angami	Asst. Director	Tourism
Ms. Chozhule Kikhi	Deputy Director	Horticulture
Mr. Shanchothung	Executive Engineer	Irrigation
Mr. Qhutovi Wotsa	Hort. Officer	Horticulture
Mr. Vizonyu Liezie	Lecturer (IETC)	Agriculture
Mr. Michael Zaren	Chief Instructor	Social Welfare
Mr. Ghukhuyi Zhimomi	Sub-Div. Officer	Irrigation
Mr. Pfukrulhou Koza	Block Dev Officer	Rural Dev.
Mr. N. Ari Jamir	Marketing Officer	Agriculture
Dr. Merle Faminow	Director	NEPED
Mr. R. Kevichusa	Team Leader	NEPED
Mr. K.K. Sema	Team Leader	NEPED II
Mr. Vengota Nakro	Deputy Director	Soil Conservation

External Participants:

Mr. Ditso Chakhesang	Deputy Secretary	Outside Coordinator
Ms. Kavita Rai	Gender Consultant	NEPED
Mr. Fred Carden	Facilitator	IDRC
Mr. Simon Hansing	Addl Director	Outside Coordinator